DOCUMENT RESUME

ED 434 137 TM 030 099

AUTHOR	Baker, David P.; Levine, Roger; Han, Mei; Garet, Michael
TITLE	A Feasibility Study of Longitudinal Design for Schools and Staffing Survey. Working Paper Series.
INSTITUTION	American Institutes for Research in the Behavioral Sciences, Washington, DC.
SPONS AGENCY	National Center for Education Statistics (ED), Washington, DC.
REPORT NO	NCES-WP-98-16
PUB DATE	1998-12-00
NOTE	98p.
AVAILABLE FROM	U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics, 555 New Jersey Avenue, N.W., Room 400, Washington, DC 20208-5652; Tel: 202-219-1831.
PUB TYPE	Numerical/Quantitative Data (110) -- Reports - Evaluative (142)
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	*Data Collection; Elementary Secondary Education; Evaluation Methods; Longitudinal Studies; *National Surveys; *Research Design; *Sampling; Tables (Data)
IDENTIFIERS	*Schools and Staffing Survey (NCES)

ABSTRACT

This report summarizes tasks undertaken to assess the feasibility of a longitudinal analysis of elementary and secondary schools. The initial objective was to see if it was technically possible to analyze overlap samples of schools from the Schools and Staffing Survey (SASS) to produce substantive findings. Over the course of the project various other objectives were added, including an appraisal of longitudinal designs for a general study of schools and recommendations about the use of the SASS. This report contains a discussion and set of recommendations about the use of longitudinal designs for National Center of Education Statistics (NCES) data collections and reporting on schools. It is recommended that the NCES not invest in a more elaborate panel design for the study of schools because the payoff would not be great enough. The second section of the report is a description of the initial feasibility study of the use of the SASS overlap study. The study finds that it is feasible to use these data to enhance the repeated cross-sectional SASS with additional time-related information. Three appendixes contain comparisons of items on the SASS school administrator and school questionnaires and thoughts on a longitudinal survey of schools and educational reform. (Contains 2 figures, 17 tables, and 4 references.) (SLD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 434 137

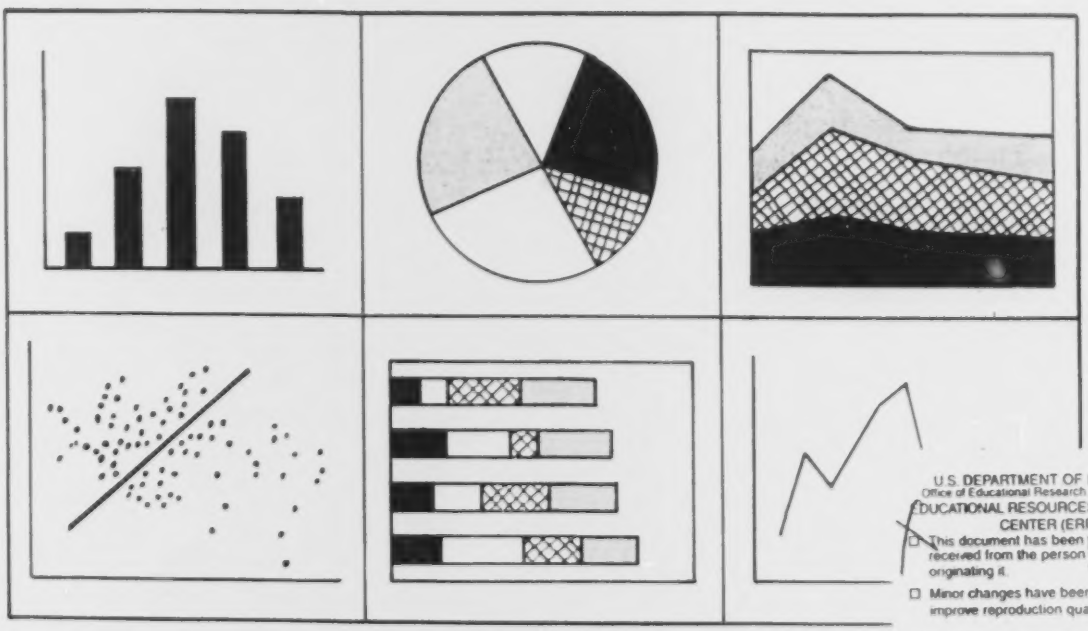
NATIONAL CENTER FOR EDUCATION STATISTICS

Working Paper Series

A Feasibility Study of Longitudinal Design for Schools and Staffing Survey

Working Paper No. 98-16

December 1998



U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

TM030099

U.S. Department of Education
Office of Educational Research and Improvement

BEST COPY AVAILABLE

A Feasibility Study of Longitudinal Design for Schools and Staffing Survey

Working Paper No. 98-16 December 1998

Contact: Stephen Broughman
Surveys and Cooperative Systems Group
e-mail: stephen_broughman@ed.gov

U.S. Department of Education
Richard W. Riley
Secretary

Office of Educational Research and Improvement
C. Kent McGuire
Assistant Secretary

National Center for Education Statistics
Pascal D. Forgione, Jr.
Commissioner

The National Center for Education Statistics (NCES) is the primary federal entity for collecting, analyzing, and reporting data related to education in the United States and other nations. It fulfills a congressional mandate to collect, collate, analyze, and report full and complete statistics on the condition of education in the United States; conduct and publish reports and specialized analyses of the meaning and significance of such statistics; assist state and local education agencies in improving their statistical systems; and review and report on education activities in foreign countries.

NCES activities are designed to address high priority education data needs; provide consistent, reliable, complete, and accurate indicators of education status and trends; and report timely, useful, and high quality data to the U.S. Department of Education, the Congress, the states, other education policymakers, practitioners, data users, and the general public.

We strive to make our products available in a variety of formats and in language that is appropriate to a variety of audiences. You, as our customer, are the best judge of our success in communicating information effectively. If you have any comments or suggestions about this or any other NCES product or report, we would like to hear from you. Please direct your comments to:

National Center for Education Statistics
Office of Educational Research and Improvement
U.S. Department of Education
555 New Jersey Avenue, NW
Washington, DC 20208

The NCES World Wide Web Home Page is
http://nces.ed.gov

Suggested Citation

U.S. Department of Education. National Center for Education Statistics. *A Feasibility Study of Longitudinal Design for Schools and Staffing Survey*. Working Paper No. 98-16, by David P. Baker, Roger Levine, Mei Han, and Michael Garet. Project Officer, Stephen Broughman. Washington, D.C.: 1998.

December 1998

Foreword

In addition to official NCES publications, NCES staff and individuals commissioned by NCES produce preliminary research reports that include analyses of survey results, and presentations of technical, methodological, and statistical evaluation issues.

The ***Working Paper Series*** was initiated to promote the sharing of the valuable work experience and knowledge reflected in these preliminary reports. These reports are viewed as works in progress, and have not undergone a rigorous review for consistency with NCES Statistical Standards prior to inclusion in the Working Paper Series.

To obtain copies of Working Papers please contact Angela Miles at (202)-219-1762, e-mail: angela_miles@ed.gov, or mail: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics, 555 New Jersey Ave. NW, Room 400, Washington, D.C. 20208-5654.

Marilyn M. McMillen
Chief Mathematical Statistician
Statistical Standards Program

Ralph Lee
Mathematical Statistician
Statistical Standards Program

A Feasibility Study of Longitudinal Design for Schools and Staffing Survey

Prepared by:

David P. Baker

American Institutes for Research
and
Pennsylvania State University

Roger Levine
Mei Han
Michael Garet

American Institutes for Research

Prepared for:

U.S. Department of Education
Office of Educational Research and Development
National Center for Education Statistics

December 1998

Table of Contents

Foreword iii

List of Tables and Figures viii

Executive Summary ix

Introduction 1

I. Should NCES Undertake Longitudinal Studies of Schools? 2

A. What Benefits Would a Panel Study of Schools Add to the Statistical Portfolio of NCES? 2

B. What is the Probability that these Benefits Will Be Fully Realized within NCES Reports? 5

C. What are the Costs Relative to the Benefits of Such a Study? 7

II. A Technical Feasibility Study of the Overlap Sample in SASS 9

A. Preparation for the Analyses 9

B. Issues which Must Be Considered When Interpreting Longitudinal Findings 12

C. Variables that Were Employed in the Analyses 15

D. Analytic Procedures 21

E. Results and Discussion 24

References 45

Appendix A. Comparison of Items on the SASS School Administrator Questionnaire 47

Appendix B. Comparison of Items on the SASS School Questionnaire 58

Appendix C. Memo: Thoughts on a Longitudinal Survey of Schools and Educational Reform 73

List of Tables and Figures

Figure 1. Longitudinal survey design by kinds of information 4

Figure 2. Analysis model for examining change in school decision making 23

Table 1. Changes in selected characteristics of schools with the same grade span in 1990-91 and 1993-94 24

Table 2. Percent of schools which have changed principal between 1990-91 and 1993-94 25

Table 3. Principal reporting of influence of various groups over school policy, by urbanicity 26

Table 4. Principal reporting of influence of various groups over school policy, by school size 27

Table 5. Principal reporting of influence of various groups over school policy, by percent minority enrollment 28

Table 6. Principal reporting of influence of various groups over school policy, by the same principal or not 29

Table 7. Principal reporting of influence of various groups over school policy, by school level 30

Table 8. Principal reporting of influence of various groups over school policy in schools with reported changes in group's influence 31

Table 9. Graduation and college application rate change, by school type 32

Table 10. Principal reporting of school environment, by urbanicity 33

Table 11. Principal reporting of school environment, by school size 34

Table 12. Principal reporting of school environment, by percent minority enrollment 35

Table 13. Principal reporting of school environment, by the same principal or not 36

Table 14. Principal reporting of school environment, by school level 37

Table 15. Principal reporting of school environment in schools with reported changes in school environment 38

Table 16. Summary of effects of state policies on changes in school decision making: 1991-1994 40

Table 17. State policy scores and decision makers' influence scores: means and standard deviations 42

Executive Summary

This report summarizes a series of tasks undertaken to assess to the feasibility of a longitudinal analysis of elementary and secondary schools. The initial objective of this Education Statistics Services Institute (ESSI) project was to see if it was technically possible to analyze the overlap samples of schools from the Schools and Staffing Surveys (SASS) to produce substantive findings. The overlap sample was initially used as a variance reduction device and was never examined substantively.

Over the course of the project various other objectives were added and correspondingly a number of products have resulted. These additional products include an appraisal of longitudinal designs for a general study of schools; recommendations about the use of SASS for collecting information on the implementation and impact of recent school reform proposals; and recommendations about adapting SASS through various longitudinal designs.

The body of this report provides two things. The first is a discussion and set of recommendations about the use of longitudinal designs for National Center for Education Statistics (NCES) data collections and reporting on schools. The second is a description of the initial feasibility study of the use of the SASS overlap study. The appendix includes other deliverables produced over the course of the project.

In terms of the general proposal for a longitudinal study of schools, it is recommended that NCES not invest in a more elaborate panel design for the study of schools. In part, this recommendation is based on an assessment of the costs of designing useful items for such an undertaking, as well as other methodological burdens. In addition, NCES rarely uses more complicated results about organizational change even when they are available. However, the authors believe that NCES can derive a wealth of time-related information from its current surveys. In short, it seems unlikely that the payoff of a large panel study will be great enough and that the additional information would be fully used by NCES.

In terms of the technical use of the SASS overlap sample, the study finds that it is feasible to use these data to enhance the repeated cross-sectional SASS with additional time-related information. At the same time, however, the analysis shows that many of the items that SASS currently collects about schools do not change much in the population over time. Some areas do show more change and these are the subject of a more detailed substantive analysis, which serves as an illustration of what NCES might be able to provide users from such an overlap sample.

Since the overlap sample is a potentially valuable feature of SASS with few, if any, additional associated costs, it is recommended that future SASS administrations continue to include an overlap sample.

Introduction

The Schools and Staffing Surveys (SASS) are a series of surveys that were administered to school district staff ("District Questionnaire"), school administrators ("School Administrator Questionnaire") school administrative staff ("School Questionnaire"), and teachers ("Teacher Questionnaire") during the 1987-88, 1990-91, and 1993-94 school years. These surveys will be administered again during the 1999-2000 school year. In each of the previous SASS administrations, approximately 9,500 public schools were surveyed—approximately 11 percent of the nation's public schools. Schools were sampled for participation through stratified random sampling with probabilities proportional to size[1].

The degree of overlap for the public school sample was controlled and set at 30 percent (for the 1990-91 and the 1993-94 school and administrator Questionnaires). This was done to decrease the likelihood of schools or districts not wanting to participate in subsequent waves and to reduce sampling error. The overlap sample for 1990-91 and 1993-94 public schools included about 2,900 schools.

The sampled schools were used to select school districts. That is, if a school were sampled, the district in which it was located was selected to receive the district (Teacher Demand and Supply) Questionnaire. By controlling the degree of overlap at 30 percent, the degree of overlap of districts was estimated to be controlled at 58 percent. Even though many of the same schools and districts were surveyed in two or more waves of the SASS, the SASS was not designed with the purpose of longitudinal analyses in mind. The feasibility of using SASS Surveys, particularly the public school-level data reported in the Public School and Public School Administrator Questionnaires, was assessed in this project.

SASS has used a newly drawn sample of districts and schools for each of its three data collections waves (1987-88, 1990-91, and 1993-94). Although successive surveys have added new items, many of the same factors were asked about in each wave. Therefore, unlike a one-time survey, SASS is a repeated, cross-sectional survey that can provide national and state estimates of variables at different points in time. However, SASS is limited in the information it can provide on the dynamics of educational change at the school and district levels. This information is only available for a subset of schools in a special sample because different schools are surveyed in the full SASS public school sample.

This working paper has two parts. The first part looks at the costs and benefits of a panel study of schools for the overall NCES statistical portfolio. The second part is a demonstration of analyses of an existing partial panel of public schools that are followed in the course of the SASS administrations. Taken together these two parts outline the feasibility of a panel design for data collection of elementary, middle, and secondary schools. In the appendix are several other products from this project, including a summary memo report on the costs and benefits of the use of a longitudinal design to obtain information on schools and educational reform in the next SASS survey.

[1] Within each of the sampling strata, the probability of selection was proportional to the square root of the number of teachers reported on the Common Core of Data School Survey data file.

I. Should NCES Undertake Longitudinal Studies of Schools?

A longitudinal or panel study refers to the collection of data from the same responding unit (district, school, or individual) at two or more different points in time. A cross-sectional study refers to the collection of data from different responding units at two or more points in time. Both types of study can allow statements to be made about how responding units have changed over time.

There are benefits and costs associated with each of these types of study. In order to inform decisions about NCES' undertaking a longitudinal study of schools, three specific questions are discussed:

- What benefits would a panel study of schools add to the statistical portfolio of NCES?
- What is the probability that these benefits will be fully realized within NCES reports?
- What are the costs relative to the benefits of such a study?

A. *What Benefits Would a Panel Study of Schools Add to the Statistical Portfolio of NCES?*

Theoretical Benefits versus Practical Use

On a purely theoretical level, it is hard to argue against the use of longitudinal designs to collect and report information on schools in the nation. Much of the public discussion about schools and their missions concerns change, either in terms of discussions about what to change and what to leave the same, or about what people suspect has changed about the operation of schools. The public assumes that educational change is a primary component of the education system. If the public image of education is surrounded in the language of change, shouldn't the way one collects and report statistics about education directly incorporate change into study designs? This has been the logic of the existing longitudinal studies mounted by NCES. The panel surveys of students, such as High School and Beyond (HS&B) and the National Education Longitudinal Study (NELS:88), are designed around the notion that following a student's educational trajectory over the school career is an approach that informs a variety of educational issues.

Similarly, the various social sciences that ground our understanding of educational processes are often characterized as ventures in the study of change—such as individual change in learning, as change in job performance of a teacher, or as a change in the organizational environment of a school. The notion that the investigation of these behavioral and social phenomena requires longitudinal data is a common assumption. It is argued that these phenomena are dynamic—namely, that they involve change over time in quantities, events, duration, or transitions to new status—and therefore, only data collection over time will inform us of their true nature (e.g., Fienberg 1989).

In the past several decades, considerable improvements in the survey techniques and statistical analysis procedures involving the use of longitudinal data (e.g., Kasprzyk, Ducan, Kalton, and Singh 1989) have been made. Starting in the mid-1980s various foreign governments increased their use of panel surveys to gather information about a range of social issues. In the United States, organizations such as the

Social Science Research Council and the American Statistical Association began to both develop and promote the use of panel designs for all types of surveys. This has lead to substantial capability in engineering such surveys and in analyzing the resulting data (Duncan and Kalton 1987).

Given all of this, is it not simple to the answer the lead question in the affirmative? Indeed, others have made the same points, arguing for an NCES longitudinal study of teachers' careers (Singer and Willett 1996). In the abstract, longitudinal designs for understanding schools are hard to reject. However, upon further reflection, the issue is far more complex, and cannot just be answered from purely a theoretical perspective. The answer is more a matter of practical use than technical capability. As a statistical agency with fixed resources, NCES needs to select wisely which innovations it should pursue and which it should leave to the research community. When the practicality of the panel data on schools is examined in relation to the kinds of information that NCES routinely publishes, it is not clear that longitudinal designs are the best way for NCES to collect information about classroom, schools, or districts.

Figure 1 shows the kinds of information that can be derived from different survey designs. This table is taken from Bailar's (1989) general discussion of longitudinal designs and can easily be extended to specific educational surveys. The columns represent designs that increase by their degree of longitudinal sophistication.

At the far left is the non-longitudinal *single-time survey*. An example of this type of survey from NCES is the typical Fast Response Survey System (FRSS) effort. Next, in terms of longitudinal sophistication is a *repeated, no-overlap survey*, often called a periodic survey. This is a recurring cross-sectional survey on the same topic. It asks similar or identical questions but does not administer different waves of the survey to the same respondents. Except for the technical, partial overlap sample, the SASS is an example of this design.

A *repeated, partial-overlap survey* is a recurring survey on the same topic that rotates units. That is, a unit may be included in the first administration and then in a subsequent wave, but not necessarily included in all administrations. This design is usually employed to reduce variance in the estimates. Within the full SASS, the partial overlap sample is a good example of this design.

A *longitudinal, no-rotation* survey (referred to hereafter as a panel study) is the most basic panel or longitudinal design. A panel of units is measured at each wave of the survey to create a full longitudinal record of information. NELS:88 is a prime example of this kind of design.

Longitudinal rotation surveys are panels that add units at specified time based on substantive issues in what may be happening with the population over time. In other words, adding new units is not just a technical "freshening" of the sample, but is done to capture rare events in the population or compare cumulated effects of new versus old members within the population.

Figure 1. Longitudinal survey design by kinds of information*

Kind of Estimate	Type of Survey: Single Time	Repeated, No Overlap	Repeated, Partial Overlap	Longitudinal, No Rotation	Longitudinal, with Rotation
One point in time	X	X	X	X	X
Durations, transitions, frequency of occurrence	X	X	X	X	X
Relationships among characteristics	X	X	X	X	X
Net change		X	X	X	X
Trends		X	X	X	X
Rare events— cumulated data		X	X		X
Gross change			X	X	X
Characteristics for longer time periods based on cumulated data				X	X
Relationships of characteristics to change				X	X

*Adopted from Bailar (1989), p. 3.

The rows in this figure display the different types of information that are obtainable from each design. For example, the *single-time* design can yield one point in time estimates, estimates of durations, transitions, and the frequency of occurrence of events, and also inform about the relationships among characteristics. In terms of information about education, these could be estimates of the percentage of schools using site-based management (point in time), the length of time this approach has been in place assuming such a retrospective item is asked (duration), and an estimate of whether schools of certain sizes are more likely to use this management approach (relationships among characteristics).

The *repeated, no-overlap* design yields these three kinds of information plus net change, trends, and rare events. An example of net change is the net change from the first to the second survey administration in the national mean percent of schools using site-based management. With at least three administrations, a trend (e.g., means at each time point) in this percentage could be described. Furthermore, one could show that perhaps because of training that took place between the first and second administration of the survey, new school principals who had never heard of site-based management were almost non-existent in comparison with their prevalence during earlier administrations of the survey.

A *repeated, partial-overlap* design yields all of these types of information, plus gross change (also called flow or churning). Since a partial overlap provides a partial panel, gross change can be derived to some degree. An example of this would be the percentage (not just two mean percentages) of schools that changed from non-site-based management at the time of the first wave to site-based at the time of the second wave.

The two *full longitudinal (panel)* designs yield all of these types of information, with the exception that the longitudinal design with no rotation does not allow for certain kinds of rare events to be included. For example, if some unique event occurred between the first and second wave of the survey which resulted in the formation of a small number of a new type of school, and if these new schools adopted a distinctly different approach to site-based management, estimates of the impact of that event would be missing from a non-rotating panel design. Otherwise, both these designs yield information to estimate change over longer periods (assuming the panel is extended into time) and to estimate relationships between characteristics and change. As an example, the relationship between school size and the likelihood that a school changes to site-base management can be determined. Even the very complex information on what kind of change in size is related to what kind of change in management approach could be estimated.

In sum, figure 1 shows that an impressive amount of time-related information can be derived from simpler designs. Even though the more longitudinally sophisticated designs add some unique information on change, the simpler, non-longitudinal designs still enable the description of time related phenomena.

B. What is the Probability that these Benefits Will Be Fully Realized within NCES Reports?

NCES rarely reports complex longitudinal information, even when the capability exists. Most NCES reports primarily include the first three types of estimates described above (one point, retrospective occurrences, and relationships). The fourth type of estimate (net change) is sometimes reported; the fifth type (trends), rarely reported. Even the panel surveys that NCES currently conducts rarely, if ever, generate the most sophisticated longitudinal analyses possible. In part, this is because more complicated longitudinal analyses do not easily fit within the usual NCES report. In addition, given that policymakers typically use only the most basic information, the full capabilities of a panel design currently are not (and probably would continue to not be) used. Even though policy questions are often set in terms of change over time, the real questions underneath them are simple time questions. For example, the question, "Are more schools now using site-based management?," is implicitly about change, but it does not require a very sophisticated design to provide at least a basic answer. The additional value of more sophisticated measures of change is not obvious to either the lay public or to most policymakers.

Therefore, on a practical level, NCES does not often use the kinds of unique information that panel designs yield. The agency's time-related information needs can be met with an array of useful information from simpler designs, and even when it has the capability for more sophisticated analyses, it rarely decides to carry these out. As is shown in the description of designs above, simpler surveys can yield a wealth of results that have some element of a time component. From a practical perspective, a fully longitudinal panel of schools would probably be used in the same way as the current, simpler

designs. The prestige in the statistical world associated with the use of panel designs may outweigh their actual contribution to the agency's statistical portfolio.

Nonetheless, one could argue that the case of school reform presents clear policy questions that NCES could approach with more sophisticated panel survey designs. For example, if a school adopts particular reform strategies (one kind of change), is that related to positive outcomes in students (another kind of change)? Of course, the best research design to answer this question is experimental, or at least quasi-experimental. National surveys are not the best methods for examining this kind of a question. However, since policymakers often wonder what will happen as reforms are adopted on a national scale, a survey with some longitudinal component might be considered. Therefore, it is useful to think about the main question of a panel study of schools regarding the specific issue of reform and NCES' capability to provide information on this topic, which is discussed in more detail below.

School Reform and Longitudinal Designs

Regardless of whether one or many reforms are of interest, basic questions about reform that longitudinal information about districts or schools could help to answer include:

- Where, how, and when are these reforms being implemented?
- How are these patterns of implementation changing over time?
- What school outcomes, if any, are attributable to reforms?

In the case of the first question, longitudinal information could provide more and better information than is obtainable through a cross-sectional survey. As previously described, simpler longitudinal designs would provide a significant amount of information relative to the first two questions. For example, the repeated cross-sectional SASS could provide information on the numbers of schools that use site-based management procedures at each administration of the survey, provided the items are included each time. A panel design would enhance that useful information with more detailed information on which schools changed to more (or less) site-based management over a specific time period.

The third question requires a panel design for a valid answer, provided that other more controlled experiments are not undertaken. Without pre-reform measures of school outcomes like achievement, teacher satisfaction, drop-out rates, and so forth, attributing effects to reformed practices becomes questionable.

Without a doubt, the use of a longitudinal design to study reform seems attractive on the surface. Even following a panel across just two time points has clear appeal and utility for assessing the impact of new practices. Reforms are really changes in operating policy and practice, and thus they can be thought of as quasi-experimental treatments whose impact can be assessed by comparing a school's functioning before and after implementation. Of course, there are also more elaborate panel designs with rotation available to compare reformed schools with unreformed schools over the same time periods.

In addition to assessing the impact of reform efforts, panel designs may be used to gather information on factors associated with the adoption of reforms and how reforms are implemented across districts and schools. The political environments of districts and schools are complex and the impetus for reform comes from a variety of sources with little, if any, centralized policy-setting in the nation.

Therefore, although the national reform message may be more or less clear, reform is locally adopted and implemented. Some districts and schools will adopt reform while others will not, and the timing of adoption will vary as well. Also, among those that choose to adopt reform, actual implementation can take on different forms. Thus, although national education politics often produce pressure for educational change, the results of this pressure, falling upon a localized system, can yield substantial variation in reformed practice from location to location over time. Examining implementation over time across a panel of districts or schools is an attractive way to gather useful information on how reforms spread across the nation.

It is true that multiple-waved panel designs provide more and richer information than simple cross-sectional designs. But it is not clear that NCES would be willing to use these kinds of designs to their fullest capacity. There is already some information on school change available in SASS that has not been used. In addition, the use of a panel study for evaluating school reform and other topics can be quite costly.

C. *What are the Costs Relative to the Benefits of Such a Study?*

The widespread belief that panel studies are more expensive than cross-sectional studies is not well established. Even though certain large longitudinal studies (such as High School and Beyond and NLS72) were undeniably expensive, their costs were largely a result of the number and special characteristics of the individuals studied. Such longitudinal studies can also be expensive because of costs associated with tracking respondents. However, for the SASS School Administrator and School Questionnaires, respondent tracking costs would be negligible. Additionally, costs associated with selecting new samples and with eliciting the initial cooperation of respondents that characterize cross-sectional surveys are negligible for panel studies (Pearson, 1991).

Operations Costs versus Design Costs

The cost of conducting a panel study of schools will be discussed in the context of studying educational reform for illustrative purposes. Additionally, we will assume that SASS would be the basic host survey for such a panel design. Even though this discussion of costs is specific to SASS and reform, it applies to any other educational topic that could be addressed using a panel design. Since sample selection and respondent tracking costs would be minimal, the administrative costs of implementing a panel survey of districts and schools would most likely be no greater than the administrative costs associated with a repeated cross-sectional survey (with or without overlap). However, the development of a panel survey that fully maximizes the time dimension in its item structure would require considerable additional investments. In the SASS context, this would require extensive redesign.

Taking full advantage of the panel survey design requires extensive item development efforts. Analyses of the SASS overlap sample (see Feasibility Study results below), using items which were simply repeated in subsequent SASS waves, over a three year span, indicated that there is not much basic structural change in schools (e.g., grade-span, school size, staff size). Probably most of the short-term change in schools has been in policies and practices. For example, NCES's study of tracking policies found that almost sixty percent of schools had changed their tracking policy in the last five years and about one half of schools were considering new modifications to schools (Carey, Farris, and Carpenter,

1994). Changes in school operation, not structure, are how most reforms would be implemented, but operations of schools are hard to measure. Also they may change often, particularly in politically contested areas of schooling. Since the current SASS does not focus very much on the dynamics of school policy setting and operation, there would probably not be much added information from just repeating current SASS items to a full panel of schools. To make SASS items yield more information, particularly about policy and practices, extensive item re-design, especially for the proposed six-year spell between data collection waves would be necessary.

For example, although it is not recommended here, one could propose to re-sample the entire 1993-94 sample, adding retrospective items on policy and practice changes related to specific reform issues such as school-based management. Developing relatively easy to answer items that will elicit valid responses, and that are retrospective to six-years on school operation for all of the different types of schools included in the full SASS sample would be a large and costly undertaking. Furthermore, items which require schools to dip into their institutional memory are easily prone to measurement error. Accordingly, valid items would take extra design efforts. In addition, there are response burden costs hidden in an extensive retrospective panel study. Items that are more sensitive to time issues usually require more response time. Finally, since respondent burden must be maintained at reasonable levels, the addition of new items would most likely require elimination of items measuring other factors.

NCES would also face numerous other technical costs in conducting a panel study of schools. Far more is known about measurement error in the responses of panels of individuals than is known about the responses of panels of organizations (Kasprzyk et al. 1989). This is further complicated when the units are organizations like schools which may have different individuals serving as the designated respondent for different waves. Analyses of the SASS overlap sample showed there were a significant number of schools with a different principal (the designated respondent for the School Administrator Questionnaire and a possible respondent for the School Questionnaire) from one wave to the next. Following a panel of organizations like schools and attempting to collect complex information on these organizations represents a formidable design challenge (Colledge 1989).

Would the costs for significant longitudinal re-design be justified by the information payoff for NCES on the topic of reform? School organizational reform is politically important to a large part of the American educational establishment and the public. And as described in Pechman et al. (1996), many of the current reforms focus directly on the general areas of school management that SASS tried, in a limited way, to capture on the last two waves. As described above, longitudinal designs are useful for collecting information about the impact, the spread, and the variation in reforms in districts and schools.

However, to justify the costs of a large, longitudinal re-design, NCES would have to be convinced that reports on the more complex nature of school change, as outlined above, are worth the investment. To maximize an investment in a longitudinal survey of schools on reform, NCES would also have to plan to invest in far more complex analyses and reports than it currently does.

Summary

The specific recommendations below about re-designing SASS for a panel study of reform apply to the general question of the value of a panel study of schools for NCES. On the whole, the specific recommendations listed below caution against such an undertaking. Given the large amount of time-related information already underutilized by the agency, it is difficult to argue that the added costs of a

panel survey would be used differently and add significantly to the agency's reports on schools in the United States. (This is not to suggest that NCES should not make use of short term longitudinal designs with surveys, such as a pre-post test design in achievement testing.)

Specific Recommendations about Longitudinal Study of School Reform

Although a longitudinal design for SASS would provide useful information on educational reform and would also strengthen NCES reporting capabilities, the re-design costs and the impact associated with changing questionnaire items mitigate against a full panel, longitudinal study for the entire SASS. Instead, small-scale, longitudinal designs that are alternatives to a full panel design should be considered as a way to capture important time variant information about reform practices.

Operational costs for a panel design of districts and schools are not significantly higher than those for a repeated cross-sectional design. However, costs to re-design SASS items to take advantage of the time dimension of a panel design can be substantial. These new items may also impose a greater burden on respondents. It does not seem advisable to design retrospective items for any sample of 1993-94 schools. Instead, one should consider starting prospectively, either with a subsample of the 1993-94 as baseline, or with a subsample of the 1999-2000 as baseline.

Organizational impact (outcomes) of reforms will be relatively hard to measure in SASS, regardless of the longitudinal nature of the design. But information on impetuses for reforms and implementations of policy and practices associated with many current reforms can be accurately collected.

II. A Technical Feasibility Study of the Overlap Sample in SASS

This section reports on two sets of analyses. The first set of analyses describe how schools have changed over time. These changes are cross-tabulated by school characteristics. The second set of analyses uses exogenous data to assess the relationships between state education policy activity and changes in the influence of various actors in school decision-making practices. This section includes a brief description of the steps undertaken to prepare for the analyses, a discussion of issues that must be considered in interpreting longitudinal findings, and an outline of the variables and procedures that were employed in these analyses. This is followed by the results of these analyses and indications of potential utility of longitudinal rather than cross sectional approaches. A set of tables, presenting a diverse array of findings are included.

A. Preparation for the Analyses

Determining which panel analyses should be conducted
There are three possible overlap samples for panel analyses of SASS schools:

Panel 1 1987-88 to 1990-91
Panel 2 1990-91 to 1993-94
Panel 3 1987-88 to 1993-94

Between 1987-88 and 1990-91, the SASS surveys underwent substantial revisions. As a result, most of the 1987-88 SASS survey items underwent minor or major changes in the 1990-91 SASS. For the SASS Public School Questionnaire, across all three waves, there were NO ITEMS relating to the following areas that were asked exactly the same way:

Enrollment counts
Minority enrollment
Male enrollment
Admission requirements
Length of school day
Type of school
Number of students absent
Number of staff (by categories)
Minority teachers
Teachers absent
Programs and services available (and number of students participating)
Library/media center presence
Kindergarten program (presence, day length, week length)
Chapter 1 participation (enrollment, staffing)
National School Lunch Program participation (number eligible, approved, and participating)
Vocational/technical program presence
Grade 12 (presence, previous enrollment)
Graduation rate
College application rate
Teacher vacancies
Methods used to fill vacancies
Difficulty in hiring teachers

Most of the noncomparabilities are associated with 1987-88 items. Nonetheless, using stringent criteria (that is, definitions, item completion instructions, and complete question wordings must be identical), only two of the above items were identically worded in 1990-91 and 1993-94:

College application rate
Teacher vacancies

However, the non-identical items administered in 1990-91 and 1993-94 were more similar than the 1987-88 items were to the 1993-94 items. Similarly, the Public School Administrator Questionnaire, the other SASS Survey dealing with school related issues, asked about the following topic areas:

Principal demographic characteristics
- Degrees earned, majors, year received
- Teaching experience (years, last teaching assignment)
- Other school positions held
- Aspiring administrator training
- Training for current position
- Experience as principal elsewhere
- Other school administrative experience

- Non-education experience

Planned tenure as principal

Salary

Length of employment contract

Benefits received

School environment (extent to which certain matters are a problem)Decision-making influence of people or groups, re:

- Establishing curriculum
- Hiring new full-time teachers
- Setting disciplinary policy
- Deciding how the school budget will be spent
- Determining content of in-service programs
- Evaluating teachers

Importance of different educational goals

As with the School Questionnaire, none of the above items were asked in identical ways across all three waves. And, as with the School Questionnaire, most of the noncomparabilities are associated with 1987-88 items. Appendices A and B provide comparisons of the item wordings used to measure similar constructs across the SASS waves.

Since the 1990-91 and 1993-94 SASS surveys were the most comparable and contained a larger set of items than the 1987-88 survey, analyses focused on panel 2 and consisted of about 2,900 public schools. Some attempts were made to analyze comparable items in panel 3. Panel 3, the six year sample, was smaller and consisted of about 950 public schools. Because of the longer time period, panel 3 was deemed worthy of some analytic effort.

Obtaining Matching Codes and Constructing Data Analysis Files

The data collector for SASS, the United States Bureau of the Census, provided a data file with IDs for linking 1990-91 school data to 1993-94 school data. Pinkerton Computer Consultants, Inc. provided a file with linking IDs for the 1987-88 and 1990-91 data. SASS Survey data were provided by the United States Department of Education. The SASS Survey data included adjusted case weights, to compensate for nonresponse and to insure that sample totals would correspond to sampling frame totals. These data were used to create analysis files for the SASS School Questionnaire and the SASS School Administrator Questionnaire. Variables were recoded to facilitate their use in longitudinal files.[2] A large data item comparability study was undertaken to examine substantive similarities and differences across years. Results of this analysis are presented in the figures that appear after the tables below.

[2] Variables were renamed according to the following conventions:

	1987-88	1990-91	1993-94
School data	AS******	BS******	CS******
Administrator data	AA******	BA******	CA******

The first character of all variables represents the year of the survey and the second character represents the questionnaire. For example CSTOTENR (total enrollment) is from 1993-94 school questionnaire, BASALARY (principal salary) is from 1990-91 administrator questionnaire.

BEST COPY AVAILABLE

Deciding on Analyses

During several team meetings in which 1987-88, 1990-91, and 1993-94 Public School Questionnaire and Public School Administrator Questionnaires were reviewed to identify comparable survey items across these three survey year periods, it was decided to divide the analysis of organizational change and stability into four parts:

1. Gross structural change analyses
2. Analyses of organizational leadership change
3. Descriptive analyses of other school characteristics
4. Analysis to identify patterns among schools in terms of organizational change and stability

In the second study, associations between changes in the decision-making roles of various groups and individuals and state education agency policy activity in several domains (accountability policies and school-based management policies) was investigated.

B. Issues which Must Be Considered When Interpreting Longitudinal Findings

There are several technical issues related to using SASS data to conduct analyses over time. They illustrate potential problems in future analyses of partial panels of schools. In some cases the problems have obvious solutions, in other cases additional analyses were required. These issues include:

Absence of new schools. By definition, no school less than 3 years old can be included in the panel 2 analyses; no school less than 6 years old, in the panel 3 analyses. Changes reported are generalizable to only the set of schools that have been in existence more than 3 (or 6) years, and may not be characteristic of newer schools.

Salary items. Salaries can be converted to constant (e.g., 1993-94) dollars using inflation factors from Consumer Price Index for the various years.

Student data. Whenever possible, both absolute size change and percentages (i.e., rather than the number of Chapter 1 students served, the percentage of students served by Chapter 1 programs; rather than number of graduates, a graduation rate based on the number of 12th graders enrolled in the previous year) will be reported.

Non-comparability of items: Item wording. As previously indicated, numerous SASS items were modified in efforts to improve data quality. Unfortunately, any change in item wording may have effects on the responses elicited. If an item was functioning as intended, there would be no need for modification. The fact that an item was modified strongly suggests that there was a belief that the item was not working (for all respondents). Accordingly, when a new version of an item is developed, there is an expectation that it will elicit different (and more valid) responses from some respondents. So, the fact that an item has been reworded indicates that there is a strong expectation that, at least for some respondents, it will elicit a different response than the previous version.

It has long been known that minor rewordings of attitudinal items can render them noncomparable. Many believe that this will not be true for the wording of factual items. However, the literature clearly shows that factual items are also sensitive to wording and formatting effects. For example, principals who completed the School Administrator's Questionnaire (in both 1987-88 and 1990-91), were reinterviewed a few months after completion of the survey and readministered factual items about their education. In 1987-88, educational attainment was measured through the following item:

Which of the following college degrees have you earned? (Mark all the degrees that you have earned.)

- ☐ *Associate degree or vocational certificate*
- ☐ *Bachelor's degree*
- ☐ *2nd Bachelor's degree*
- ☐ *Master's degree*
- ☐ *2nd Master's degree*
- ☐ *Professional diploma or education specialist (At least one year beyond M.A. level)*
- ☐ *Doctorate (e.g., Ph.D., Ed.D.)*
- ☐ *First Professional degree (e.g., M.D., L.L.B., J.D., D.D.S.)*

Upon readministration in 1987-88, the bachelor's degree item had a gross error (discrepancy) rate of 20.3 percent; the master's degree item, a gross error rate of 9.9 percent! So, in 1990-91, the items were reformatted to ask:

Do you have a bachelor's degree?

- ☐ *Yes*
- ☐ *No*

Do you have a master's degree?

- ☐ *Yes*
- ☐ *No*

With this rewording, the gross error rates were reduced to 1.3 percent and 1.7 percent, respectively.[3] Most item rewordings are not expected to have such substantial effects.

Non-comparability of items: Context effects. Even when identical items are administered, it is not always possible to make similar comparisons over time. If there is a difference in the sequence in which some items were presented, item context effects may be manifest. An example of possible context effects is provided by the School Administrator Questionnaire item one asking about the extent to which various matters are a problem in the school. In the 1987-88 School Administrator Questionnaire, item 14 asks:

[3] NCES (1994). *Quality Profile for SASS, Aspects of the Quality of Data in the Schools and Staffing Surveys (SASS)*. Washington, D.C.: Government Printing Office, NCES 94-340; Tushery, J., Royce, D., and Kasprzyk, D. (1992). The Schools and Staffing Survey: How Reinterview Measures Data Quality. *Proceedings of the American Statistical Association*, pp. 458-463. Alexandria, VA: American Statistical Association.

BEST COPY AVAILABLE

For each of the following matters, indicate whether it is a serious problem, a moderate problem, a minor problem, or not a problem in your school.

Thirteen items followed. In subsequent years, most of the same items were listed. However, additional items were added and some were deleted. Since most of the items were asked in subsequent waves, simple longitudinal comparisons of responses seem possible. Unfortunately, attitudinal items are sensitive to context effects. That is, the previous items in the list create a context (or set) and can strongly influence subsequent responses. Specifically, in the 1987-88 School Administrator Questionnaire, "Physical abuse of teachers" preceded "Verbal abuse of teachers." In subsequent waves, "Physical abuse of teachers" was eliminated. It can be argued "Physical abuse" creates a context that minimizes the seriousness of "Verbal abuse." So, if there were a decline in the perceived level to which "Verbal abuse of teachers" was a problem, it could be attributed to either a real change in school climate or to context effects. The literature is very clear—preceding items can strongly influence responses to subsequent items. Unfortunately, the literature does not allow one to estimate the magnitude of these effects *a priori* or to predict with certainty that they will occur.

Dealing with non-comparability of items. To address this issue, it was assumed that context effects are randomly distributed among principals. This enabled comparisons of the decline in the level to which this was a problem in elementary schools vs. secondary schools and in urban vs. rural schools. So, if there was a substantial decline in one type of school (say, urban schools) relative to other types of schools, one could assert that this decline represented a real change in climate. However, if analyses by school characteristics show comparable declines across all the different types of schools, one cannot know (with certainty) if the decline is a context effect or a real decline.

Another approach one might take to address this problem is a normalization approach. That is, one can look at the average, overall change across all items and then compare the change in a specific item with the overall change. This approach assumes that the entire list provides a context for respondents and that items appearing before and after the item of interest will contribute to contextual effects. (Although this has been demonstrated to occur, particularly in a self-administered questionnaire when the respondent reads the entire list or changes responses after completing subsequent items the impact of the immediately preceding items will be probably be greater for most respondents.)
Interpretation of responses to the school decision making influence items must take into account the existence of context effects. These items, in 1987-88, asked about the influence of "School district/Governing Board," "Principal/Head," and "Teachers." In 1990-91, the number of potential actors increased by three and "School district/Governing Board" became "School Board." In 1993-94, the list of actors included two new categories and "School district/Governing Board" was broken up into two categories: "School district staff" and "School Board." These items are still valuable in identifying the types of schools in which change was the greatest. One has to be cautious about asserting that overall change has occurred for these items.

Missing data. In the 1990-91 and 1993-94 SASS, item nonresponse was nonexistent, since missing data were imputed. In the 1987-88 SASS, there was no imputation. Accordingly, issues of response

bias must be considered when 1987-88 SASS questionnaire responses are compared with those of subsequent years.[4]

C. Variables that Were Employed in the Analyses

Gross Structural Change Analyses

Schools change their grade structure. These changes most often are small and involve the addition or subtraction of pre-kindergarten and kindergarten programs (Levine and McLaughlin, 1996). In order to investigate the how schools changed, their grade range of students served in 1990-91 and in 1993-94 were compared. Changes and stability in enrollments, faculty, and student/teacher ratios were also examined, using survey variables providing measures of total student enrollment, number of teachers, and a derived student/teacher ratio.

Analyses of Organizational Leadership Change

The SASS School Administrator Questionnaire and the SASS School Questionnaire contained the items that were compared within the overlap sample panel of schools. For all waves of the SASS, the principal was the designated respondent for the School Administrator Questionnaire. However, schools might have had different principals for each administration of SASS.

The respondent for the SASS School Questionnaire was determined by the school's principal. That is, School Questionnaires were sent to principals, without any restrictions on who may complete them. Principals could complete the questionnaire themselves or they could assign someone on their staff to complete the questionnaire. Since the items on the School Questionnaire were all factual (rather than attitudinal), changes in respondent should have less of an effect on responses.

In the 1990-91 Administrator Questionnaire, Item 9a asked:

> *Prior to this school year, how many years have you been employed in each of the following positions?*
>
> *a. As the principal in this school?*

Similarly, in the 1993-94 Administrator Questionnaire, item 16 asked:

> *Were you the principal of this school in the spring of 1991?*

These items were used to identify principals who were (or should have been) respondents to two or more of the survey waves. A few invariant characteristics of principals were investigated to verify whether the principal was really the same respondent in different waves:

---

[4] The new SASS CD-ROM, which was released after these analyses were conducted, contains imputed data for the SASS surveys.

- Year of birth
- Gender
- Race/ethnicity
- Hispanic origin
- Years of teaching experience prior to becoming a principal
- Other positions held before becoming a principal
- Previous educational experience

These invariant characteristics were relatively stable among individuals responding to the 1993-94 School Administrator Questionnaire who indicated they were the principal of this school in the spring of 1991. There were several exceptions. This might reflect the fact that in some schools, more than one person fills the role of principal in the case of co-principals.[5] And different co-principals could have responded to the survey in the different waves.

To minimize the impact of different respondents in our analyses of change, attempts were made to restrict the panel schools to those that had the same respondent to the School Administrator Questionnaire. New leadership can bring change, but also a different informant on an organization can have different responses to items than his or her predecessor. While we cannot completely disentangle these effects, the analysis sheds some light on this issue in the longitudinal study of schools.

Descriptive Analyses of Other School Characteristics

After reviewing the High School and Beyond (HS&B) longitudinal results from the National Longitudinal Study of Schools (Levine, 1996), a set of variables from the SASS School Administrator and SASS School Questionnaires was selected. These variables were chosen for inclusion in the descriptive analyses, reflecting their potential to provide information about whether or not schools change. These variables included:

(Question numbers are 1993-94 question numbers)
Administrator Questionnaire

A24. To what extent is each of the following matters a problem in this school?

- *Teacher absenteeism*
- *Student tardiness*
- *Student absenteeism*
- *Students cutting classes*
- *Students dropping out*
- *Student apathy*
- *Physical conflicts among students*
- *Robbery or theft*
- *Vandalism of school property*
- *Student pregnancy*

[5] Levine, R. (1996). *Changes in America's High Schools, 1980-1993: The National Longitudinal Study of Schools*. Palo Alto, CA: American Institutes for Research.

- *Student use of alcohol*
- *Student drug abuse*
- *Student possession of weapons*
- *Student disrespect for teachers*
- *Verbal abuse of teachers*
- *Lack of academic challenge*
- *Lack of parent involvement*
- *Parental alcoholism and/or drug abuse*
- *Poverty*
- *Racial tension*

NOTE: This item is subject to context effects, as discussed previously.

A25. Using the scale 0-5, where 0 is none and 5 is a great deal, indicate how much ACTUAL influence you think each group or person has on decisions concerning the following activities? (Only three activities are comparable; comparisons with 1987-88 are not recommended. This item is subject to the possibility of moderate context effects.)

NOTE: This item is also subject to context effects that mitigate against comparisons with 1987–88 data. Furthermore, comparisons in subsequent waves are only possible in three areas of decision making.

School Questionnaire

S8. What was the total number of students enrolled in this school around the first of October?
S9. Around the first of October, how many students were: (RACE/ETHNICITY)?
S30c. How many students graduated from the 12th grade last year?
S30d. How many of last year's graduates applied to two- or four-year college year?

Analyses to Identify Patterns among Schools in Terms of Organizational Change and Stability

One of the most interesting things in looking at changes is identifying the types of schools in which the greatest or least change has occurred. Due to time and resource constraints, attempts were only made to identify first-order effects (i.e., changes in high vs. low minority schools) rather than higher order effects (changes in urban, high minority schools vs. changes in urban, low minority schools). The independent variables used for cross-tabulations of findings were:

1. Grade range of school: Elementary, Secondary, Combined
2. Region: North, East, West, South
3. Minority composition: dichotomized as less than 20% and 20% or greater
4. School size: <150; 150-499, 500-749; 750 or greater
5. Urbanicity: Metropolitan status code (urban area, primarily inside central city ["urban"]; urban area, primarily outside central city ["suburban"]; non-urban area ["rural"])

Analyses to Investigate Associations Between Changes in the Decision-making Practices and State Education Policy Activity

Items from the School Administrator Questionnaire dealing with school decision-making practices in the areas of discipline policy, curriculum, and new teacher hiring were investigated. These items looked at the influence of various groups (state department of education, school board, principal, teacher, and parent association) in making these decisions.
Information about the policy environment in which these changes occurred was obtained through a survey of representatives of 50 state education agencies (SEAs) and the District of Columbia's education agency (Levine and Huberman, 1995). Data from this survey provided information about six different domains of policy activity:

1. Performance Reporting and Dissemination (Accountability)
2. Testing Policies
3. Curriculum and Instruction Policies
4. Public School Choice and Enrollment Policies
5. Teacher Policies
6. School Organization Policies

These domains were chosen because they were believed to be areas of significant policy activity, they could be related to student achievement, and they could have effects that could be measured by re-administering High School and Beyond survey items. Policy activity in *all* of these domains increased between 1980 and 1993.

Performance Reporting and Dissemination (Accountability)

Accountability policies prescribe the reporting and dissemination of information about school performance. Policies in this area usually do not make value judgments about school performance levels. That is, most states do not specify performance standards or tie rewards and sanctions to levels of performance. When rewards and sanctions are specified, they are most commonly in the form of good or bad publicity.

Policies related to performance reporting can vary in many ways, including the type of information disseminated, the audiences to whom they are directed, the standards they specify (if any), and incentives and sanctions associated with these standards. Required reports can summarize performance for individual schools, districts, or the state as a whole, placing public pressure on the specific agency whose performance is being reported. The reports can also contain contextual information to help users interpret the information.

Because of these factors, individual states can differ tremendously with respect to the intensity of their accountability policies. One state may widely disseminate school, district, and state-level measures of performance, specify standards that schools and districts should attain, provide rewards to high performing schools and agencies, and apply sanctions against poor performing schools and agencies; another state may simply report statewide student performance to state policy makers. Both states have policies in this area, but clearly, their policies differ in intensity.

Types of information disseminated. In 1993, 43 of the states (84 percent) had accountability policies related to student test performance, requiring the reporting and dissemination of some form of student test-performance measures. Accountability policies related to nontest performance were even more prevalent. All but one state required the reporting and dissemination of nontest performance measures, such as school dropout rates, graduation rates, average daily attendance, and the proportion of students going to college.

Audiences to whom performance information was disseminated. Most of the states widely disseminated performance reports in 1993. The general public was a major audience: when information was disseminated, more than seven-eighths of these states disseminated it to the general public. As expected, state-level information was disseminated to state policy makers, and district-level scores were disseminated to all districts in all states with this type of reporting.

Performance standards. Of the 43 states with accountability policies for student test performance in 1993, most states (54 percent) required only the reporting and dissemination of student performance data, but they did not set standards for performance. Standards for test performance were specified by 20 states; standards for nontest performance were specified by 15 states. The most prevalent type of sanction related to poor performance was negative publicity; the most prevalent type of reward was "official recognition/publicity." Accreditation (or loss of it) was the next most common incentive and sanction, following official recognition/publicity.

Testing Policies

Testing policies provide states with an opportunity to influence what is taught in the schools. Policies that link teacher and administrator rewards and sanctions to student test performance ("high-stakes testing") can exert strong pressures to teach the curriculum covered by these tests. Since most state-mandated tests are aligned with the state's curricular frameworks, it is not surprising that policy activity in testing is strongly correlated with policy activity in curriculum.

Between 1980 and 1993, the amount of state-mandated testing "increased" or "greatly increased" in two-thirds (67 percent) of the states, and the number of state-mandated or state-recommended uses of such tests had "increased" or "greatly increased" in three-quarters of the states (75 percent).

High school subject areas. In 1993, most states required testing in mathematics (86 percent) and in reading (82 percent) in at least one high school grade. Approximately half of the states required testing in science (53 percent) and social studies (51 percent) in at least one high school grade; approximately one-third (37 percent) required testing in basic skills; approximately one-sixth (16 percent) in physical fitness; and only one state required testing in a foreign language. The greatest amount of state-mandated student performance assessment in mathematics, reading, science, history/social studies, and basic skills occurred in the 11th grade.

High school alternative assessments. By 1993, more than two-thirds of the states (69 percent) had developed portfolio assessments for writing or were developing them. More than half (57 percent) had developed portfolio assessments for mathematics assessments or were developing them.

Curriculum and Instruction Policies

Nearly half of the states (48 percent) changed their high school curricular policies in the period between 1990 and 1993. In 1993, more than two-thirds of the states provided frameworks for high school students in each of the core subject areas (English, mathematics, and science). Most states also had developed or were developing curricular guidelines for instruction in nontraditional areas, such as work-place and life skills.

The major motivators for using the state-provided curriculum are testing and the dissemination of test performance results. Almost two-thirds (63 percent) of the states that provided curricula in 1993 used them as the basis of mandated tests. Very few states (11 percent) deemed it necessary to provide financial incentives to schools to encourage the use of state curricular guidelines or learning competencies. Fewer still (4 percent) used financial incentives to encourage schools to provide a prescribed set of courses in core academic areas.

Course requirements. In 1993, a majority of the states (61 percent) prescribed a set of required courses for high school students. Almost two-thirds of the states had high school graduation requirements in English equal to four-year state college admission requirements. One-third of the states had similar requirements in mathematics; 47 percent, in science.

Classroom instructional policies. In 1993, five states had policies concerning homogeneous grouping (i.e., grouping students together according to their ability levels). All of these policies, which were implemented between 1985 and 1992, discouraged such grouping.

Textbook policies. In 1993, more than one-third (37 percent) of the states had policies concerning school textbooks. Nine states specified which books were to be used in required courses; six states provided incentives for using approved textbooks.

Public School Choice and Enrollment Policies

The underlying goal of choice policies is to provide equal access to desirable public schools (such as a school with distinctive characteristics or educational approaches, or a school whose student test scores are high) to all students within a district or state. State policies related to choice and enrollment were quite stable during the 1980-1993 period. Most states deferred to local authorities to develop and implement public school choice plans.

State policy activity in the area of high school choice and enrollment occurred in 17 states in 1993 and was independent of activity in all other policy areas except school organization. In 13 states, policies explicitly encouraged within-district open enrollment for high school students. In general, policies in public school choice and enrollment, whether dealing with inter- or intra-district choice, tended to be permissive rather than prescriptive or prohibitive. Districts were generally allowed to adopt and implement their own public school choice policies.

Teacher Policies

Policies dealing with certifying, hiring, and evaluating teachers have been one of the traditional ways for states to influence the delivery of education services. By specifying stringent standards, rigorous

training programs, continuous performance monitoring and performance-based rewards and sanctions, and incentives for professional growth and development, states can help ensure that high quality teachers are hired and that they are motivated to perform at the highest levels. Activity in the area of teacher policies was found to be significantly associated with the proportion of education funding that the state government controlled. The greater the proportion, the more the state implemented policies in this domain to affect education outputs.

Entry requirements. In 1993, at least 44 states required high school teachers to have completed a specified number of credit hours in education or an academic area. Most states also required beginning teachers to meet certain initial certification criteria, pass an entrance test, and complete student teaching.

Maintenance of quality. In 1993, more than three-quarters (78 percent) of the states required teachers to obtain additional formal education or in-service training to maintain certification, and 36 states required teachers with probationary certification to be evaluated. States also provided funds to districts or schools for in-service training (75 percent), supported teacher mentoring programs (73 percent), and sponsored in-depth conferences for high school teachers (67 percent). In 1993, more than half (59 percent) of the states also mandated evaluation to make decisions about teacher retention or dismissal.

School Organization

School organization concerns the roles that different individuals play within a school, particularly with respect to decision making. State policy activity in this area is strongly correlated with policy activity in the area of performance reporting and dissemination (accountability).

School-based decision making. Compared with 1980 policies, newer policies in two-thirds (67 percent) of the states "encouraged" or "strongly encouraged" school-based decision making (regarding such issues as curriculum, allocation of resources, facilities maintenance, and the hiring and firing of the principal or teachers). In spite of this strong trend towards decentralization, very few states (five or fewer) *required* school-based decision making in the areas investigated: curriculum, resource allocation, facilities maintenance, hiring and firing of the principal, and hiring and firing of teachers.

School councils. Nearly all (90 percent) states reported that school councils were involved in school-level decision-making processes. However, most states either did not specify a role (44 percent) for them, or encouraged a primarily advisory role (37 percent).

Other state school organization policies. In 1993, nearly half (47 percent) of the states had policies related to the size of classes in public schools, and 58 percent of these states decreased their target class sizes. Fewer than half (43 percent) of the states had policies regarding staffing-ratios (i.e., the number of students per professional). Between 1980 and 1993, seven states decreased their staffing ratios, and six states increased them. Finally, by 1993, 45 states either had a technology plan for their schools or were developing one.

Accountability policy activity and school organization (particularly school-based management) policy activity were the policy areas that were selected for further analyses. Scores representing the level of

policy activity in each of the areas of interest were available from data files created for this purpose (Levine, 1996b).

D. Analytic Procedures

Within-school measures of organizational change were calculated for schools in the overlap sample, using items from the 1990-91 and 1993-94 SASS School Administrator and School Questionnaires. In these analyses, data were weighted using school weights from the 1993-94 SASS data files. These enabled generalization of findings to schools that existed at the time that the sampling frames for the 1990-91 and 1993-94 SASS surveys were developed.

One complication that arose in our analyses was that the primary measures of school organization available in the SASS data set were attitude and perception measures completed by the school principal. Schools that changed principals over this time period were identified, to enable some analyses to control for the potential effects of changes in perception due to a different respondent. In about 46 percent of the sample schools, the principal who completed the SASS survey in 1990-91 (the first time point in our two-wave panel) was no longer serving as principal in the spring of 1993-94, when the next SASS wave was conducted.

Another complication concerned the potential unreliability in the available measures of organization and context. Unreliability in the measures will reduce the observed correlations in measures over time, potentially exaggerating the degree of instability over time in organizational features. To examine this issue, reliability coefficients (Cronbach's alpha) for each organizational measure were calculated. Over-time correlations were compared with the scale reliabilities.

Analyses of Longitudinal Change, Cross-tabulated by School Characteristics

Analyses of (1) the influence of various groups in decision making and (2) the level to which various factors were perceived as problems by the principal were cross-tabulated by selected independent variables (urbanicity, school size, percent minority enrollment, school level, and whether or not the principal had changed over this time period).

Schools were also categorized as showing either improvements (positive changes) or declines (negative changes) in their school climate. The principal's responses to the school climate items (i.e., items asking the extent to which various factors were a problem in the school) in 1993-94 were compared with responses in 1990-91. Schools in which the response to these items were higher in 1993-94 were labeled as showing improvements in climate; those with decreases, declines in climate. Similarly, schools were categorized as having changes in the influence of various actors (positive or negative) in decision making, according to the principal report. The principal's response to the influence items in 1993-94 were compiled with responses in 1990-91. Schools in which the response to a group's influence item was higher in 1993-94 were labeled as showing a positive influence for the group; those with declines, a negative influence.

Changes in twelfth grade graduation rates and the proportion of graduates going on to higher education were calculated for each school with a twelfth grade. These changes were cross-tabulated with several of the independent variables discussed above (urbanicity, school size, minority enrollment, and whether

or not the school changed principals over this time period). For all of these analyses, both mean change scores and the proportion of schools that had changed were calculated. These data are presented in Table 1 and Tables 3–15.

Finally, the percentage of schools that changed principals between 1990–91 and 1993–94 was estimated, overall and by several of the independent variables discussed above (urbanicity, school size, minority enrollment, school level, and region). Results are presented in Table 2.

Analyses to Investigate Associations Between Changes in the Decision-making Practices and State Education Policy Activity

To investigate whether or not recent reform-related policies enacted by education departments of the states have an influence on schools, a series of multivariate analyses was performed. This was done by merging the state education agency policy data, describing policy in 1992–93 (Levine and Huber man, 1996), with the longitudinal school change data derived from the 1990–91 and 1993–94 SASS School Administrator Questionnaire items dealing with influence of various groups on decision making. The basic question examined was: Does educational policy variation among the state policies have an effect on variation among schools in changes in their decision-making processes from 1990–91 to 1993–94?

Figure 2 shows the analytic model used for this analysis. For each school in the longitudinal file, a dependent variable measured in the recent wave (1994) was regressed on the same variable measured in the earlier wave (1991), plus the state policy of interest, plus seven control variables. These other variables controlled for different school characteristics which might be related to organizational decision-making measures (urbanicity, region, enrollment size, percent minority students, school climate, whether the school changed principals over this time, and influence level in 1990–91). By controlling for the effect of the level of the dependent variable (influence level) at time one, this straightforward longitudinal model shows the effect that any other independent variable might have on change from 1991 to 1994 (Tuma and Hannan 1984).

Figure 2. Analysis model for examining change in school decision making

$$Y_{T2} = \alpha Y_{T1} + \beta_1 X_1 + \beta_i X_i .... + \beta_0$$

where: Y=mean influence on school decisions over curriculum, student discipline policies, and faculty hiring
T1=1991
T2=1994
X_1=State policies 1992
Xi=Other school characteristics

Since organizational decision making was going to be analyzed, two state policy domains that would be expected to influence this decision making were identified. The first type related to the use of student test scores for school accountability. The second was a policy that attempts to foster and increase more school-based management (SBM). SBM policies also included several other policy dimensions such as

the degree to which the SBM policy was integrated within the rest of the state department of education's school management policies and how recent the SBM policy was put into action in the state.

There were five dependent variables, each representing the average influence (on a six point scale) a different governance actor has across the school's decisions in curriculum policy, teacher hiring policies, and student discipline policies. The actors included the state department of education, school board, principal, teachers, and the parent association. Higher values indicate greater levels of influence exerted by the actor on these decisions. These variables, as previously indicated, were collected from principals' perceptions of the decision-making environment that their schools function within. Results of these analyses are presented in Tables 16 and 17.

E. Results and Discussion

Gross Structural Change Analyses

Excluding schools that added or dropped prekindergarten programs, 83 percent of the longitudinal schools had the same grade structures in 1990-91 and 1993-94. Changes in grade structure were apparently implemented in response to changing demographics and school policy.

Some longitudinal schools underwent a major shift in the grade levels they served. Using longitudinal data, it is possible to estimate how many have done this and how substantial the changes were. Changes in the organizational structure of a school that underwent a major shift in grade levels served probably reflected the impact of the grade level shift more than anything else. Schools that had such radical changes should probably be analyzed separately and excluded from further analyses.

Accordingly, changes and stability in enrollments, faculty, and student/teacher ratios were examined in schools that had the same grade structures in 1990-91 and 1993-94 (see table 1). These changes reflected demographic changes during the given time period.

Table 1. Changes in selected characteristics of schools with the same grade span in 1990–91 and 1993–94

Mean values	1990-91	1993-94	Net change	% schools increasing	% schools decreasing	% schools not changing
Student enrollment	532.5	547.4	14.8	59.5	39.9	0.6
Student/teacher ratio	16.8	17.1	0.3	44.9	54.9	0.2
Minority student enrollment (percent)	26.0	28.0	2.1	54.1	27.0	19.0
Minority teachers (percent)	12.2	12.2	-.10	29.4	27.7	42.9

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 and 1993-94 Schools and Staffing Surveys, "Public School Questionnaire."
NOTE: Net change may not equal the difference between years and percentages may not sum to 100 percent due to rounding.

Analyses of Organizational Leadership Change

Close to half (46 percent) of the schools in the United States changed their principals over the 1990-91 to 1993-94 time period. Schools in the West region were more likely to have had a change in leadership compared to schools in other regions, especially in comparison with those in the Midwest region (54 percent versus 38 percent for Midwest), versus 45 percent for the South and 44 percent for the Northeast (see table 2). Similarly, combined schools were more likely to change principals than elementary or secondary schools (54 percent versus 44 percent). Accordingly, a variable indicating whether a school changed its principal was introduced in our multivariate analysis of principal reporting on decision making to control for the potential effects of different respondents.

Table 2. Percent of schools which have changed principal between 1990–91 and 1993–94

Total	46.0
Urbanicity	
Urban	47.5
Suburban	43.7
Rural	43.7
School size	
<150	47.6
150-499	44.1
500-749	41.8
750+	47.9
Minority enrollment	
<20%	44.2
20%+	48.7
School level	
Elementary	44.1
Secondary	44.3
Combined	54.4
Region	
Northeast	44.3
Midwest	38.1
South	44.5
West	54.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 Schools and Staffing Survey, "Public School Administrator Questionnaire" and 1993-94 Schools and Staffing Survey, "Public School Principal Questionnaire."

These preliminary analyses also showed that principal succession was more likely in schools with minority enrollments in excess of 20 percent (49 percent versus 44 percent in other schools).

Descriptive Analyses of Other School Characteristics and Analyses to Identify Patterns among Schools in Terms of Organizational Change and Stability

During the three-year period between the 1990-91 and the 1993-94 school years, as previously noted, schools had relatively little change in their grade structure. They had more change in terms of leadership (see table 2) and their principal's perception of influence over school policy by various groups (see tables 3-8).

Table 3. Principal reporting of influence of various groups over school policy, by urbanicity

	Urban		Suburban		Rural	
	change	% schools changing	change	% schools changing	change	% schools changing
Establishing Curriculum						
State Dept. of Education	0.20	61.2	0.27	62.2	0.11	65.3
School board	-0.09	70.9	-0.15	72.2	0.04	73.4
Principal	0.31	67.2	0.14	64.9	0.07	69.3
Teacher	0.35	71.1	0.31	68.8	0.27	66.3
Librarian	0.18	70.8	0.09	70.4	0.10	71.8
Parent Association	0.32	68.3	0.25	64.5	0.21	68.9
Hiring new full-time teachers						
School board	-0.27	76.5	0.03	75.0	0.11	73.3
Principal	0.25	56.8	0.03	45.4	0.02	45.9
Teacher	0.76	74.7	0.76	70.7	0.75	73.1
Parent Association	0.57	57.9	0.49	53.1	0.30	50.5
Setting discipline policy						
State Dept. of Education	0.01	81.7	-0.01	72.5	-0.08	75.3
School board	-0.09	66.2	0.02	68.5	0.13	68.0
Principal	0.20	62.6	0.09	51.6	0.04	52.5
Teacher	0.28	68.8	0.34	61.7	0.25	65.0
Parent Association	0.46	74.6	0.46	73.0	0.34	73.1

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 Schools and Staffing Survey, "Public School Administrator Questionnaire" and 1993-94 Schools and Staffing Survey, "Public School Principal Questionnaire."

Table 4. Principal reporting of influence of various groups over school policy, by school size

	<150		150-499		500-749		750+	
	change	% schools changing	change	% schools changing	change	% schools changing	change	% schools changing
Establishing Curriculum								
State Dept. of Education	0.03	74.9	0.09	62.2	0.38	64.1	0.23	59.8
School board	-0.13	74.3	-0.01	71.2	-0.08	72.9	-0.02	74.8
Principal	-0.06	69.5	0.15	67.1	0.11	65.1	0.26	71.4
Teacher	0.30	66.1	0.31	67.4	0.26	67.2	0.32	72.5
Librarian	0.34	66.0	0.03	73.3	0.12	67.8	0.20	72.9
Parent Association	0.18	65.2	0.26	66.4	0.15	66.4	0.38	74.1
Hiring new full-time teachers								
School board	0.19	69.9	-0.04	74.2	-0.06	76.1	0.10	75.7
Principal	0.14	48.8	0.07	49.3	-0.00	46.9	0.14	46.3
Teacher	0.71	67.9	0.79	71.8	0.66	75.4	0.82	75.3
Parent Association	0.39	46.3	0.37	51.2	0.39	55.7	0.55	57.5
Setting discipline policy								
State Dept. of Education	0.03	72.1	-0.11	77.9	0.14	72.4	-0.12	77.7
School board	0.14	71.6	0.10	68.6	0.01	65.8	-0.08	65.6
Principal	0.23	61.4	0.08	53.3	0.08	53.2	0.07	55.8
Teacher	0.49	69.5	0.28	63.2	0.20	65.6	0.30	66.3
Parent Association	0.52	74.9	0.35	71.0	0.34	77.0	0.54	74.8

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 Schools and Staffing Surveys, "Public School Questionnaire" and "Public School Administrator Questionnaire" and 1993-94 Schools and Staffing Survey, "Public School Questionnaire" and "Public School Principal Questionnaire."

Table 5. Principal reporting of influence of various groups over school policy, by percent minority enrollment

	less than 20% minority		20% minority and over	
	change	% schools changing	change	% schools changing
Establishing Curriculum				
State Dept. of Education	0.13	64.6	0.24	62.1
School board	-0.04	72.2	-0.03	72.9
Principal	0.11	68.6	0.18	66.2
Teacher	0.34	67.1	0.25	69.4
Librarian	0.08	71.2	0.16	71.2
Parent Association	0.24	65.9	0.26	69.8
Hiring new full-time teachers				
School board	0.08	74.3	-0.10	74.6
Principal	0.04	44.3	0.13	53.5
Teacher	0.81	71.1	0.68	75.2
Parent Association	0.34	50.3	0.50	56.4
Setting discipline policy				
State Dept. of Education	-0.09	75.9	0.03	76.0
School board	0.09	71.9	0.00	62.0
Principal	0.11	52.2	0.07	57.7
Teacher	0.32	62.4	0.24	68.4
Parent Association	0.37	71.2	0.44	76.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 Schools and Staffing Surveys, "Public School Questionnaire" and "Public School Administrator Questionnaire" and 1993-94 Schools and Staffing Surveys, "Public School Questionnaire" and "Public School Principal Questionnaire."

Table 6. Principal reporting of influence of various groups over school policy, by the same principal or not

	Same principal		Not the same principal	
	change	% schools changing	change	% schools changing
Establishing Curriculum				
State Department of Education	0.19	58.9	0.16	69.4
School board	-0.09	67.8	0.02	78.4
Principal	0.10	65.0	0.19	70.9
Teacher	0.28	64.3	0.33	72.8
Librarian	0.05	70.1	0.19	72.5
Parent Association	0.17	62.8	0.34	73.5
Hiring new full-time teachers				
School board	-0.10	70.0	0.14	80.0
Principal	0.06	43.1	0.09	54.5
Teacher	0.64	69.3	0.90	77.2
Parent Association	0.26	46.3	0.60	60.9
Setting discipline policy				
State Department of Education	-0.14	71.6	0.09	81.4
School board	0.05	65.9	0.05	69.9
Principal	0.11	50.5	0.07	59.5
Teacher	0.32	60.9	0.24	70.0
Parent Association	0.35	68.1	0.46	80.0

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 Schools and Staffing Survey, "Public School Administrator Questionnaire" and 1993-94 Schools and Staffing Survey, "Public School Principal Questionnaire."

Table 7. Principal reporting of influence of various groups over school policy, by school level

	Elementary		Secondary		Combined	
	change	% schools changing	change	% schools changing	change	% schools changing
Establishing Curriculum						
State Dept. of Education	0.18	63.0	0.16	65.0	0.19	63.9
School board	-0.03	72.3	-0.11	73.6	0.15	69.8
Principal	0.20	67.1	0.04	67.7	-0.29	76.4
Teacher	0.31	66.6	0.32	71.3	-0.03	73.7
Librarian	0.13	70.7	0.12	72.6	-0.14	71.0
Parent Association	0.24	67.3	0.27	69.2	0.12	63.5
Hiring new full-time teachers						
School board	-0.04	74.8	0.04	73.6	0.50	73.7
Principal	0.06	49.4	0.13	44.4	-0.02	50.1
Teacher	0.76	73.3	0.73	71.4	0.84	73.9
Parent Association	0.43	53.3	0.36	51.2	0.36	59.1
Setting discipline policy						
State Dept. of Education	-0.05	77.5	-0.07	71.4	0.36	76.9
School board	0.03	68.0	0.04	66.1	0.40	72.7
Principal	0.09	54.9	0.13	52.5	-0.07	59.4
Teacher	0.27	63.9	0.34	67.0	0.25	70.0
Parent Association	0.36	73.6	0.49	73.0	0.49	72.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 Schools and Staffing Surveys, "Public School Questionnaire" and "Public School Administrator Questionnaire" and 1993-94 Schools and Staffing Surveys, "Public School Questionnaire" and "Public School Principal Questionnaire."

Table 8. Principal reporting of influence of various groups over school policy in schools with reported changes in group's influence

	Positive		Negative		Overall	
	change	% schools changing	change	% schools changing	change	% schools changing
Establishing Curriculum						
State Dept. of Education	1.73	35.9	-1.61	27.7	0.18	63.6
School board	1.72	35.7	-1.77	36.8	-0.04	72.5
Principal	1.66	37.1	-1.57	30.5	0.14	67.6
Teacher	1.68	42.2	-1.59	25.8	0.30	68.1
Librarian	1.71	38.7	-1.69	32.5	0.11	71.2
Parent Association	1.66	40.2	-1.54	27.3	0.24	67.6
Hiring new full-time teachers						
School board	1.72	38.2	-1.77	36.3	0.00	74.5
Principal	1.65	24.6	-1.41	23.6	0.07	48.2
Teacher	2.02	53.4	-1.66	19.4	0.76	72.8
Parent Association	1.85	36.5	-1.63	16.4	0.41	52.8
Setting discipline policy						
State Dept. of Education	1.90	36.8	-1.88	39.2	-0.04	76.0
School board	1.68	36.0	-1.74	31.7	0.05	67.7
Principal	1.47	29.3	-1.35	25.2	0.09	54.5
Teacher	1.56	40.3	-1.40	24.6	0.28	64.9
Parent Association	1.89	46.6	-1.80	26.8	0.40	73.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 Schools and Staffing Survey, "Public School Administrator Questionnaire" and 1993-94 Schools and Staffing Surveys, "Public School Principal Questionnaire."

Preliminary results on general school change indicate that, overall, the kinds of organizational characteristics that were measured were relatively stable features of schools, at least over the three-year period of our study. However, substantial changes in several other characteristics were observed, especially in the degree of influence of parents, teachers, and principals over decisions about curriculum and instruction (see tables 3-8). Furthermore, preliminary results indicate that change in organizational characteristics is related to school context. For example, an increase in teacher influence between 1990-91 and 1993-1994 was more likely in some types of schools (e.g., schools with lower minority enrollment) than in others.

Total student enrollment (see table 1), student/teacher ratio (see table 1), high school graduation rate (see table 9), and college application rate (see table 9) stayed rather constant. Overall, the school environment had changed relatively little. The 1990-91 and 1993-94 SASS School Administrator Questionnaires asked principals to report on how serious 20 different problems were in their schools (see tables 10-15). These problems included basic and behavior standards; involvement; attendance; and respect for teacher, students, and property. On a 4-point scale, the biggest changes were a reduction of .15 scale units for "physical conflicts among students" and declines of .10 scale units for "student possession of weapons" and "racial tension."

Table 9. Graduation and college application rate change, by school type

	Graduation Rate		College Application Rate	
	change	% schools changing	change	% schools changing
Total	-2.11	81.8	1.23	96.6
Urbanicity				
Urban	-4.50	89.0	0.57	92.0
Suburban	-0.03	93.1	0.79	98.5
Rural	-2.19	76.1	1.55	97.2
School size				
<150	-5.09	53.8	8.03	83.9
150-499	-1.46	78.7	-0.14	99.2
500-749	-3.21	89.9	2.95	99.8
750+	-0.80	94.8	2.95	99.6
Minority enrollment				
<20%	-1.88	77.9	1.56	97.6
20%+	-2.57	88.8	0.58	95.0
Leadership				
Same principal	-0.53	81.3	1.57	96.9
Not same principal	-4.70	81.5	0.50	97.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 Schools and Staffing Surveys, "Public School Questionnaire" and "Public School Administrator Questionnaire" and 1993-94 Schools and Staffing Surveys, "Public School Questionnaire" and "Public School Principal Questionnaire."

Table 10. Principal reporting of school environment, by urbanicity

	Urban		Suburban		Rural	
	change	% schools changing	change	% schools changing	change	% schools changing
Teacher absenteeism	-0.01	50.2	0.04	43.5	-0.00	45.5
Student tardiness	-0.03	53.4	-0.00	50.8	-0.06	49.1
Student absenteeism	0.00	56.3	0.03	43.8	-0.01	50.3
Student cutting classes	-0.03	25.7	-0.03	21.9	-0.06	24.2
Student dropping out	0.05	24.2	0.04	16.9	0.02	25.7
Student apathy	-0.05	53.1	-0.11	47.1	-0.07	55.2
Physical conflicts among students	-0.22	53.5	-0.07	41.0	-0.17	49.2
Robbery or theft	-0.06	45.5	-0.03	38.9	-0.09	38.5
Vandalism of school property	-0.05	53.1	-0.02	39.7	-0.09	40.2
Student pregnancy	-0.05	18.0	0.01	15.9	0.00	25.5
Student use of alcohol	0.05	21.0	0.04	19.9	0.04	32.6
Student drug abuse	-0.00	21.6	0.00	23.3	0.01	29.6
Student possession of weapons	-0.10	34.5	-0.08	26.9	-0.11	22.9
Student disrespect for teachers	-0.07	47.7	-0.00	47.2	-0.04	48.9
Verbal abuse of teachers	-0.12	47.7	0.07	46.9	-0.04	46.0
Lack of academic challenge	0.02	48.1	-0.03	47.0	0.06	53.3
Lack of parent involvement	0.02	51.6	0.09	56.6	0.08	58.1
Parental alcoholism and/or drug abuse	-0.11	51.9	-0.00	48.7	-0.00	50.0
Poverty	-0.13	45.7	-0.13	46.8	-0.05	45.5
Racial tension	-0.12	42.4	-0.10	38.5	-0.09	32.1

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 Schools and Staffing Survey, "Public School Administrator Questionnaire" and 1993-94 Schools and Staffing Survey, "Public School Principal Questionnaire."

Table 11. Principal reporting of school environment, by school size

	<150		150-499		500-749		750+	
	change	% schools changing	change	% schools changing	change	% schools changing	change	% schools changing
Teacher absenteeism	0.02	35.2	-0.02	45.2	0.00	45.5	0.06	55.5
Student tardiness	-0.13	48.7	-0.01	49.3	-0.07	48.7	-0.02	57.9
Student absenteeism	0.00	56.0	0.02	48.4	-0.04	50.9	0.00	49.0
Student cutting classes	0.07	24.9	-0.07	20.1	-0.05	21.7	-0.06	37.6
Student dropping out	0.11	29.5	-0.01	18.0	0.03	20.7	0.09	36.9
Student apathy	0.02	57.6	-0.09	49.4	-0.13	55.1	0.00	55.1
Physical conflicts among students	-0.14	44.0	-0.14	47.3	-0.19	45.4	-0.15	55.7
Robbery or theft	-0.10	35.9	-0.06	36.1	-0.01	45.3	-0.14	47.4
Vandalism of school property	-0.09	40.5	-0.04	41.7	-0.03	44.1	-0.14	46.6
Student pregnancy	-0.02	30.8	0.01	16.1	-0.00	20.0	-0.06	32.4
Student use of alcohol	0.13	40.9	-0.00	21.3	0.06	24.9	0.07	35.7
Student drug abuse	0.09	34.8	-0.02	22.0	0.01	25.3	-0.00	34.0
Student possession of weapons	-0.05	19.8	-0.09	20.0	-0.11	31.4	-0.17	43.3
Student disrespect for teachers	-0.09	45.8	-0.01	48.7	-0.07	45.2	-0.02	52.4
Verbal abuse of teachers	0.05	45.8	-0.01	45.4	-0.08	48.7	-0.07	47.8
Lack of academic challenge	-0.10	52.3	0.03	50.4	0.05	49.9	0.08	50.1
Lack of parent involvement	0.03	59.5	0.02	55.5	0.09	55.8	0.21	57.1
Parental alcoholism and/or drug abuse	0.05	49.6	-0.03	50.0	-0.06	48.1	-0.04	53.2
Poverty	-0.05	51.0	-0.10	45.8	-0.10	43.5	-0.05	46.7
Racial tension	-0.06	22.2	-0.09	32.6	-0.09	40.0	-0.17	49.8

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 Schools and Staffing Surveys, "Public School Questionnaire" and "Public School Administrator Questionnaire" and 1993-94 Schools and Staffing Surveys, "Public School Questionnaire" and "Public School Principal Questionnaire."

Table 12. Principal reporting of school environment, by percent minority enrollment

	less than 20% minority		20% minority or more	
	change	% schools changing	change	% schools changing
Teacher absenteeism	0.03	44.5	-0.03	48.0
Student tardiness	-0.03	49.9	-0.05	51.4
Student absenteeism	0.02	47.6	-0.02	53.1
Student cutting classes	-0.04	21.7	-0.05	27.0
Student dropping out	0.02	20.5	0.05	26.3
Student apathy	-0.04	51.5	-0.12	54.0
Physical conflicts among students	-0.13	45.0	-0.19	52.0
Robbery or theft	-0.08	35.4	-0.05	46.7
Vandalism of school property	-0.05	40.3	-0.07	46.6
Student pregnancy	-0.00	20.2	-0.02	22.7
Student use of alcohol	0.03	27.1	0.05	25.9
Student drug abuse	0.01	26.0	-0.01	26.2
Student possession of weapons	-0.09	20.5	-0.12	34.8
Student disrespect for teachers	-0.00	47.9	-0.09	48.6
Verbal abuse of teachers	0.02	45.0	-0.11	48.8
Lack of academic challenge	0.02	49.1	0.04	52.3
Lack of parent involvement	0.08	56.1	0.06	56.5
Parental alcoholism and/or drug abuse	0.01	48.0	-0.08	52.9
Poverty	-0.09	44.3	-0.09	48.1
Racial tension	-0.10	28.5	-0.09	46.6

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 Schools and Staffing Surveys, "Public School Questionnaire" and "Public School Administrator Questionnaire" and 1993-94 Schools and Staffing Surveys, "Public School Questionnaire" and "Public School Principal Questionnaire."

Table 13. Principal reporting of school environment, by the same principal or not

	Same principal		Not the same principal	
	change	% schools changing	change	% schools changing
Teacher absenteeism	-0.05	42.2	0.07	50.7
Student tardiness	-0.03	45.5	-0.05	56.8
Student absenteeism	-0.01	43.5	0.02	57.8
Student cutting classes	-0.05	20.0	-0.05	28.9
Student dropping out	0.01	19.2	0.05	27.6
Student apathy	-0.10	47.3	-0.04	59.0
Physical conflicts among students	0.17	45.2	-0.13	51.3
Robbery or theft	-0.10	34.4	-0.02	47.4
Vandalism of school property	-0.07	38.7	-0.05	48.2
Student pregnancy	-0.00	17.7	-0.02	25.6
Student use of alcohol	0.04	22.8	0.03	31.3
Student drug abuse	-0.01	23.7	0.02	29.1
Student possession of weapons	-0.11	22.4	-0.09	31.7
Student disrespect for teachers	-0.06	43.1	-0.01	54.5
Verbal abuse of teachers	-0.03	42.4	-0.04	51.9
Lack of academic challenge	0.04	44.2	0.02	58.2
Lack of parent involvement	0.04	51.2	0.11	62.6
Parental alcoholism and/or drug abuse	-0.06	43.7	0.02	58.0
Poverty	-0.08	38.9	-0.10	54.6
Racial tension	-0.12	30.8	-0.07	42.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 Schools and Staffing Survey, "Public School Administrator Questionnaire" and 1993-94 Schools and Staffing Survey, "Public School Principal Questionnaire."

Table 14. Principal reporting of school environment, by school level

	Elementary		Secondary		Combined	
	change	% schools changing	change	% schools changing	change	% schools changing
Teacher absenteeism	0.01	44.1	0.03	50.5	-0.15	49.5
Student tardiness	-0.05	49.5	0.01	53.0	-0.22	52.6
Student absenteeism	0.01	48.3	0.02	54.2	-0.15	50.4
Student cutting classes	-0.02	15.2	-0.10	45.8	-0.19	38.1
Student dropping out	0.03	14.0	0.05	44.2	-0.12	43.6
Student apathy	-0.09	51.4	-0.07	55.5	0.08	53.6
Physical conflicts among students	-0.12	47.2	-0.23	48.9	-0.26	53.7
Robbery or theft	-0.03	37.2	-0.14	46.7	-0.22	49.7
Vandalism of school property	-0.05	42.1	-0.07	45.2	-0.13	43.1
Student pregnancy	0.02	10.3	-0.09	47.2	0.03	46.8
Student use of alcohol	0.03	15.4	0.07	54.0	0.02	46.5
Student drug abuse	0.01	17.8	-0.03	46.5	0.06	40.3
Student possession of weapons	-0.06	21.7	-0.23	41.2	-0.12	19.3
Student disrespect for teachers	0.00	47.0	-0.13	49.6	-0.11	59.3
Verbal abuse of teachers	0.02	46.0	-0.16	48.6	-0.16	45.0
Lack of academic challenge	0.04	49.0	-0.01	53.2	0.13	57.5
Lack of parent involvement	0.11	56.5	-0.01	56.5	-0.10	51.9
Parental alcoholism and/or drug abuse	-0.02	48.0	-0.06	54.6	-0.05	55.7
Poverty	-0.09	46.1	-0.07	44.8	-0.19	49.2
Racial tension	-0.06	34.3	-0.20	39.1	-0.04	47.8

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 Schools and Staffing Surveys, "Public School Questionnaire" and "Public School Administrator Questionnaire" and 1993-94 Schools and Staffing Surveys, "Public School Questionnaire" and "Public School Principal Questionnaire."

Table 15. Principal reporting of school environment in schools with reported changes in school environment

	Positive		Negative		Overall	
	change	% schools changing	change	% schools changing	change	% schools changing
Teacher absenteeism	1.18	22.8	-1.14	23.2	0.01	46.0
Student tardiness	1.15	23.2	-1.11	27.4	-0.04	50.5
Student absenteeism	1.17	24.4	-1.11	25.5	0.00	49.9
Student cutting classes	1.14	9.6	-1.08	14.3	-0.05	23.9
Student dropping out	1.24	12.1	-1.11	10.9	0.03	23.0
Student apathy	1.14	24.1	-1.23	28.5	-0.08	52.5
Physical conflicts among students	1.14	17.2	-1.14	30.8	-0.15	47.9
Robbery or theft	1.07	17.3	-1.10	22.9	-0.07	40.2
Vandalism of school property	1.07	19.2	-1.12	23.7	-0.06	42.9
Student pregnancy	1.15	10.3	-1.14	11.0	-0.01	21.2
Student use of alcohol	1.24	14.5	-1.17	12.1	0.04	26.6
Student drug abuse	1.15	12.8	-1.09	13.2	0.00	26.1
Student possession of weapons	1.10	8.4	-1.08	18.2	-0.10	26.6
Student disrespect for teachers	1.14	22.5	-1.15	25.7	-0.04	48.2
Verbal abuse of teachers	1.13	21.9	-1.13	24.8	-0.03	46.6
Lack of academic challenge	1.20	26.6	-1.22	23.9	0.03	50.4
Lack of parent involvement	1.23	30.4	-1.18	25.9	0.07	56.3
Parental alcoholism and/or drug abuse	1.21	23.7	-1.20	26.3	-0.03	50.0
Poverty	1.19	19.1	-1.18	26.8	-0.09	45.9
Racial tension	1.14	14.2	-1.18	22.0	-0.10	36.1

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 Schools and Staffing Survey, "Public School Administrator Questionnaire" and 1993-94 Schools and Staffing Survey, "Public School Principal Questionnaire."

Compared to their perception of school environment, principals' perception of influence over school policy by various groups (state department of education, school board, principal, teacher, and parent association) has changed relatively more during the same time period. Principals reported that teachers and parent associations have more influence over school policies regarding establishing curriculum, hiring new full-time teachers, and setting school policy.

These preliminary results suggest that the collection of data on school organization for a longitudinal sample can contribute to our understanding of school organization and school change, and that important conclusions can be drawn from panel data that cannot be derived from trend data alone. Further work is needed to identify the most promising school organization measures to include in future panel studies and to determine the most appropriate sampling plan. In particular, attention must be

given to the appropriate time interval between data collections in future panel studies, and the number of periods over which data should be collected for each school in the sample.

Analyses to Investigate Associations Between Changes in the Decision-making Practices and State Education Policy Activity

Recent research has given considerable attention to the importance of school organizational characteristics in explaining teacher effectiveness and student outcomes (e.g., Hallinan, 1995). Work in this tradition has focused on a diverse set of organizational features, including the structure of the curriculum, teacher work conditions, the locus of decision making, the school climate, and the degree of consensus on goals and methods of instruction. While work on school organization holds promise in identifying school features associated with achievement, little is known about the ways school organizational features develop over time. In particular, almost no data are available to determine whether organizational features (such as the relative influence of various organizational actors on key decisions) are relatively stable features of schools, changing over a long time period, or whether they are relatively transient features, adjusting with changes in instructional and administrative staff or student composition. It also is not clear whether changes in organizational characteristics are more likely in some types of schools than others.

Most previous longitudinal studies, such as High School and Beyond and NELS:88, have focused on students as the primary unit of the analysis. However, with the exception of a recent follow-up study of High School and Beyond Schools (Levine, 1996), there is almost no analysis of school change with a large nationally representative sample.

Data from the SASS Administrator and School Questionnaires were used to estimate the amount of organizational change that had occurred in each of the schools in the overlap sample of public schools. The extent to which the degree of observed change in school decision-making processes differed across states that have taken different approaches to educational reform was one of the foci of these examinations. The past two decades have witnessed a large volume of state policy-making activity in education, and different states have employed different strategies to encourage school improvement. One key dimension of variation across states is the degree of emphasis placed on school-based decision making. Some states like Hawaii and Colorado have given considerable emphasis to encouraging school-based management, while other states like Michigan and Virginia have given these policies much less attention. States also vary in the emphasis given to accountability policies, policies encouraging or requiring schools to report routinely on student achievement, graduation rates, and other key outcomes.

These two reform strategies might be expected to have different effects on school organization. Stevenson and Schiller (1997), for example, argue that school-based management is an "exhortatory policy," based on professional images of the form a reform-oriented school should take. One might expect such policies to diffuse through professional networks. Accountability policies, on the other hand, involve an emphasis on school outputs rather than procedures. The effects of accountability policies on school organization are difficult to predict. Hence, as Stevenson and Schiller argue, we

should expect stronger, more consistent effects of statewide school-based management policies on school organization than statewide accountability policies.

Table 16 presents a summary of the effects of state policies from the twenty-five ordinary least squares (OLS) regressions. There are several major conclusions from this analysis about the effects of state policies on changes in school decision-making processes.

Table 16. Summary of effects of state policies on changes in school decision making: 1991–1994

	State Policies				
Influence on school decisions	Accountability	School-based management policy	School-based management integrated policy	Recent school-based management policy	SBM: interaction effect
State Dept. of Education	+	+	+	+	N.S.
District School Board	N.S.	–	–	–	N.S.
Principal	N.S.	N.S.	N.S.	N.S.	N.S.
Teacher	N.S.	N.S.	+	+	+
Parent Association	N.S.	N.S.	+	+	N.S.
R^2 range	.11-.25	.11-.24	.11-.26	.11-.24	.11-.24

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 and 1993-94 Schools and Staffing Surveys, "School Administrator Questionnaire,"and Levine, R., "Changes in State Education Policies, 1980-1993: The National Longitudinal Study of Schools. Palo Alto: American Institutes for Research, 1997.
NOTE: Cell entries are OLS coefficients; + means "positive significant"; — means "negative significant"; N.S. means "not significant".

First, as predicted, accountability policy intensifies the tendency for state departments of education to have greater impact upon school's managerial decisions. However, accountability polices have no effects on the rest of the actors studied in the education decision-making process. These kinds of state policies are not associated with any changes in the level of influence of school boards, principals, teachers, or parent associations on school operations. Accountability policies increase school's sensitivity to state governance but not to other stakeholders in the education system. In a sense, accountability tightens one of the usually loosely coupled links between authority and the organizational production in education, but it has little influence on other links.

Second, the same is almost true for SBM policies. If a state has an explicit SBM policy, schools tend to see an increase in the influence of state department of education on their day-to-day operations. The irony of this finding is discussed below. However, unlike the effects of accountability policies, state SBM policies tend to lower the influence of district school boards on school decision-making. Further, contrary to what might be predicted about policies that attempt to increase school level actors' influence on decision making, a state SBM policy did not have an effect on the influence of principals, teachers,

or parent associations. In the case of principals, this may be a technical limitation of the dependent measure. Principals are often so heavily involved in school decisions, the scale of the measurement may not allow enough "ceiling" to capture changes in principals' even greater influence. As shown in table 17, on the six-point influence scale[6], mean principals' influence was already high in 1991 and rose even more by 1994.

[6] On the 1990-91 SASS School Administrator Questionnaire, respondents were instructed to indicate the amount of influence each group or person has on decisions concerning various activities, "using the scale 1-6, where 1 is 'None' and 6 is 'A great deal.'"

Table 17. State policy scores and decision makers' influence scores: means and standard deviations

	Mean	Standard deviation
State policies		
Accountability	9.75	4.12
School-based management policy	0.45	0.50
School-based management integrated policy	7.85	5.35
Recent school-based management policy	0.28	0.45
Influence		
Department of Education 1991	3.67	1.22
Department of Education 1994	3.74	1.17
School Board 1991	4.23	1.11
School Board 1994	4.20	1.08
Principal 1991	4.97	0.91
Principal 1994	5.08	0.82
Teacher 1991	3.97	1.09
Teacher 1994	4.40	1.06
Parent Association 1991	2.28	0.99
Parent Association 1994	2.63	1.08

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990-91 and 1993-94 Schools and Staffing Surveys, "School Administrator Questionnaire,"and Levine, R., "Changes in State Education Policies, 1980-1993: The National Longitudinal Study of Schools. Palo Alto: American Institutes for Research, 1997.
NOTE: For information about how state policy scores were calculated, see Levine (1997a). Higher influence scores indicate greater amounts of influence.

Why should a state SBM policy not increase the decision-making power of teachers and parents groups? To examine this further an index that measured the degree to which SBM policies were integrated into a State's approach to the management of schools was constructed. States can just proclaim a SBM policy and not connect it to other policies that bring it into practice, or states can take a more integrated approach to SBM. Or, states may not even have an explicitly stated SBM policy, but may have adapted other related policy that fits a general SBM approach. The index captured a wider array of state policies that might have an impact on SBM. The effects of the variable are summarized in the third column ("School-based management integrated policy") of table 16. Schools in states with an

integrated SBM policy still tended to perceive an increase in influence from the state department of education and a lowering of influence of the district administration over the three-year time span. But, more in line with the intentions of a SBM approach, both teachers and parent association groups gained influence over time in states with integrated policies.

Third, since the state policy study examined when various policies were adopted by states, we can examine the effect of recent SBM policies versus older or no SBM policies. Since recent reforms have pushed SBM philosophies to such a large extent, we predicted that recent SBM policies might have more salient effects on changes in school decision-making. And the results indicate precisely that. Schools in states with recently adopted SBM policies have increased both teachers' and parent association group's influence on decisions and decreased the influence of the school board. (see Table 16.)

Fourth, to examine further the dynamics of governance policy and school change, we constructed an interaction term between the integrated SBM index and the timing of adoption of a SBM policy. States that have recent, integrative SBM policies expanded the influence of teachers in school decision making. And this model (not shown completely in figure 2) also indicates that after controlling for this joint effect, states which had just recently adopted an SBM policy, but without any integration of this policy into other management policies, had decreases in teacher influence on decision making. An interaction between an integrated policy and its timing only had an effect on teachers.

Accountability policies had the predicted impact; namely, they increased the influence of the state department of education on schools. Surprisingly, SBM policies did this too. There is some irony in the finding that a policy intended to focus more decision-making involvement of the school results in greater influence of the state department of education. One way to think about this is to consider where most of the bureaucratization of schooling comes from in the American system of education and how a SBM policy would have an impact on that. The extensive local nature of schooling in the United States means that many administrative processes pile up at the school district level. And although there are some 15,000 school districts, many of these are very small, serving small populations of schools and students. Consequently, most schools are a part of the larger school districts in the nation. Since administrative size has long been known to be associated with more centralized management processes, the school district is likely the greatest obstacle to increasing decision-making power at the school level. This makes sense considering our findings that state SBM policies do decrease the influence of the school boards. And in doing that the state's department of education may elevate their own influence on schools along with increasing the influence of teachers and parents.

Another way to think about this ironic effect is that policies can often have unintended effects, particularly when they are not well integrated in administrative practices. If a state publicly and loudly proclaims its embrace of SBM principles, but does not do much to integrate them into actual practices, schools could perceive a greater influence of the state department but never reap the benefits of greater decision-making power. This is the difference between the effects we find for a stated policy only versus one that is integrated into a set of policies.

Summary and Conclusions

Longitudinal data from the SASS overlap sample can be used to provide indications of how schools have changed. These data can be linked with exogenous sources to provide insights and knowledge that would not be otherwise possible through cross-sectional analyses. Since there are obvious potential benefits and few, if any, additional costs associated with the overlap sample, it is recommended that future SASS administrations include an overlap sample.

References

Bailar, B. 1989. "Information Needs, Surveys, and Measurement Errors." In *Panel Surveys*, Kasprzyk et al. (Eds.), New York: Wiley and Sons.

Carey, N., Farris, E. and Carpenter, J. 1994. *Curricular Differentiation in Public High Schools.* NCES 95-360.

Colledge, M. 1989. "Coverage and Classification Maintenance Issues in Economic Surveys." In *Panel Surveys*, Kasprzyk et al. (Eds.), New York: Wiley and Sons.

Duncan, G. and Kalton, G. 1987. "Issues of Design and Analysis of Surveys across Time." *International Statistical Review* 55(1), 97-117.

Fienberg, S. 1989. "Modeling Considerations: Discussion for a Modeling Perspective." In *Panel Surveys*, Kasprzyk et al. (Eds.), New York: Wiley and Sons.

Hallinan, M. T. 1995. *Restructuring Schools: Promising Practices and Policies.* New York: Plenum Press.

Kasprzyk, D., Duncan, G., Kalton, G. and Singh, M. 1989. *Panel Surveys.* New York: Wiley and Sons.

Levine, R. and Huberman, M. 1995. *National Longitudinal Study of Schools, State Survey: Data User's Guide.* Palo Alto, CA: American Institutes for Research.

Levine, R. and McLaughlin, D. 1996. *Trends in School District Demographics*, 1986-87 to 1990-91. Washington, D.C.: U.S. Department of Education, Office of Educational Research and Improvement, NCES 96-399.

Levine, R. 1997a. *Change in America's High Schools and State Education Policies, 1980-1993: The National Longitudinal Study of Schools.* Palo Alto, CA: American Institutes for Research.

Levine, R. 1997b. *Change in State Education Policies, 1980-1993: The National Longitudinal Study of Schools.* Palo Alto, CA: American Institutes for Research.

Pearson, R. 1991. "The Advantages and Disadvantages of Longitudinal Surveys." In: *Seminar on Quality of Federal Data, Part 3 of 3.* Washington, D.C.: Federal Committee on Statistical Methodology, Statistical Policy Office, Office of Information and Regulatory Affairs, Office of Management and Budget, pp. 407-424.

Pechman, E., O'Brien, and Wodatch, J. 1996. "Measuring School Reform: Recommendations for Future SASS Data Collections." Washington, D.C.: Educational Statistical Services Institute Report, NCES.

Singer, J. and Willett, J. 1996. "Methodological Issues in the Design of Longitudinal Research: Principles and Recommendations for a Quantitative Study of Teacher's Careers." *Educational Evaluation and Policy Analysis* 18, 4, 265-83.

Stevenson, D. L. and Schiller, K. 1997. *State Education Policies and School Change*. Working draft.

Tuma, N. and Hannan, M. 1984. *Social Dynamics: Models and Methods*. New York: Academic Press, Inc.

Appendix A. Comparison of Items on the SASS School Administrator Questionnaire

Data items comparable between 1987-88, 1990-91, and 1993-94 SASS Administrator Questionnaire (**Differences shown in bold, na=not asked**)

Item topic	1987-88	1990-91	1993-94
BA/BS	**1a. Which of the following college degrees have you earned? (Bachelor's degree is listed)** **1b.** What was your major field of study for **each degree**? **1c.** In what year did you receive **each degree**? **No items about second major or minor field of study**	**2a.** Do you have a bachelor's degree? **2b.** What was your major field of study? **2c.** In what year did you receive your bachelor's degree? **2d.** Did you have a second major **or minor** field of study? **2e.** What was you second major **or minor** field of study?	**5a.** Do you have a bachelor's degree? **5b.** What was your major field of study? **5c.** In what year did you receive your bachelor's degree? **5d.** Did you have a second major field of study? **5e.** What was your second major field of study? **5f. Did you have a minor field of study?** **5g. What was your minor field of study?**
Second BA/BS	**1a. Which of the following college degrees have you earned? (Second Bachelor's degree is listed)** **1b.** What was your major field of study **for each degree**? **1c.** In what year did you receive **each degree**? **No items about second major or minor field of study**	**na**	**7a.** Do you have a second bachelor's degree? **7b.** What was your major field of study? **7c.** In what year did you receive your second bachelor's degree?
MA/MS	**1a. Which of the following college degrees have you earned? (Master's degree is listed)** **1b.** What was your major field of study **for each degree**? **1c.** In what year did you receive **each degree**?	**3a.** Do you have a master's degree? **3b.** What was your major field of study? **3c.** In what year did you receive your master's degree?	**8a.** Do you have a master's degree? **8b.** What was your major field of study? **8c.** In what year did you receive your master's degree?

Item topic	1987-88	1990-91	1993-94
Second MA/MS	**1a. Which of the following college degrees have you earned? (Second Master's degree is listed)** **1b.** What was your major field of study **for each degree**? **1c.** In what year did you receive **each degree?**	**na**	**9a.** Do you have a second master's degree? **9b.** What was your major field of study? **9c.** In what year did you receive your second master's degree?
Other degrees	Similar series for: Associate degree **or vocational certificate** Professional diploma or education specialist (At least one year beyond **M.A.** level) Doctorate (e.g., Ph.D.., Ed. D.) First Professional degree (e.g., M.D., L.L.B., J.D., D.D.S.) **No Degree or diploma**	Similar series for: Associate degree Education specialist or professional diploma (at least one year beyond Master's level) Doctorate or first professional degree (Ph.D., Ed.D., M.D., L.L.B., J.D., D.D.S.)	Similar series for: Associate degree Education specialist or professional diploma (at least one year beyond master's level) Doctorate or first professional degree (Ph.D., Ed.D., M.D., L.L.B., J.D., D.D.S.)
Teaching experience	2a. How many years of elementary or secondary teaching experience did you have **prior** to becoming a principal? **If less than one year, enter "1".**	5a. How many years of elementary or secondary teaching experience did you have PRIOR to becoming a principal? Count part of a year as 1 year.	11a. How many years of elementary or secondary teaching experience did you have PRIOR to becoming a principal? Count part of a year as 1 year.
	2b. How many years of elementary or secondary teaching experience have you had altogether?	5b. How many years of elementary or secondary teaching experience have you had SINCE becoming a principal? Count part of a year as 1 year.	11b. How many years of elementary or secondary teaching experience have you had SINCE becoming a principal? Count part of a year as 1 year.

BEST COPY AVAILABLE

Item topic	1987-88	1990-91	1993-94
Main assignment in last year of teaching	3a. In your last year of teaching before you became an administrator, what was the filed of your **PRIMARY** TEACHING ASSIGNMENT, i.e., the filed in which you taught the most classes? If your teaching schedule was divided equally between two fields, record either field as your **primary** assignment field, **mark box 1, and enter the second field in item 3b.**	6. In your most recent year of teaching, what was the field of your **MAIN TEACHING ASSIGNMENT**, i.e., the filed in which you taught the most classes? If your teaching schedule was divided equally between two fields, record either field as your **main** assignment field.	12. In your most recent year of teaching, what was the field of your **MAIN TEACHING ASSIGNMENT**, i.e., the filed in which you taught the most classes? If your teaching schedule was divided equally between two fields, record either field as your **main** assignment field.
Other school positions	**4. What other positions, if any, did you hold before you became a principal? Checklist for other positions — nothing about years.**	**7. What other school positions, if any, did you hold** before you became a principal? **Checklist for other positions — nothing about years.**	**14a. Did you hold any other school position** BEFORE you became a principal? **Which of the following school positions did you hold before becoming a principal and for how many years?**
	1) Department head or curriculum coordinator	1) Department head or curriculum coordinator	**1) Department head** **2) Curriculum specialist or coordinator**
	2) Assistant principal or program director	2) Assistant principal or program director	3) Assistant principal or program director
	3) Guidance counselor	3) Guidance counselor	4)Guidance counselor
	na	**na**	**5) Library media specialists/librarians**
	4) Athletic coach	4) Athletic coach	6) Athletic coach
	5) Sponsor for student clubs, debate teams	5) Sponsor for student clubs, debate teams	7) Sponsor for student clubs, debate teams
	na	6) Other - **SPECIFY**	8) Other - **Describe other school position**

Item topic	1987-88	1990-91	1993-94
	6) None **of the above**	0) None	**na**
Aspiring administrator training	**na**	8a. Prior to becoming an **administrator**, did you participate in any district or school training or development program for ASPIRING school administrator	15a. Prior to becoming a **principal**, did you participate in any district or school training or development program for ASPIRING school administrator
Indian administrator training	**na**	8b. Have you ever participated in a training program for Indian education administrators?	15b. Have you ever participated in a training program for Indian education administrators?
Principal training	6. Aside from college coursework for a degree, have you had any of **the following** types of training for your current position?	10. Aside from college coursework for a degree, have you had any of these types of training for your current position?	20. Aside from college coursework for a degree **or participation in a program for ASPIRING school principals**, have you had any of these types of training for your current position?
	1) In-service training in evaluation and supervision	1) In-service training in evaluation and supervision	1) In-service training in evaluation and supervision
	2) Training in management techniques	2) Training in management techniques	2) Training in management techniques
	3) An administrative internship	3) An administrative internship	3) An administrative internship
	4) None of the above	4) None of the above	4) None of the above
other positions	5. Prior to this school year, **and since earning your first college degree,** how many years have you been employed in each of the following position? **If less than one year, enter "1."**	9. Prior to this school year, how many years have you been employed in each of the following position? **If less than one year, enter "1."**	17. Prior to this school year, how many years have you been employed in each of the following position? Count part of a year as 1 year.
	a) As the principal in this school?	a) As the principal in this school?	a) As the principal in this school?

BEST COPY AVAILABLE

Item topic	1987-88	1990-91	1993-94
	b) As the principal in other schools?	b) As the principal in other schools?	b) As the principal in other schools?
	c) In other school or district administrative positions?	c) In other school or district administrative positions?	**na**
	d) In other nonteaching nonadministrative positions in elementary and secondary education?	d) In other nonteaching nonadministrative positions in elementary and secondary **education, e.g., a guidance counselor or school psychologist?**	**na**
	e) In positions outside elementary and secondary education?	e) In **professional** positions outside elementary and secondary education?	**na**
Planned tenure as a principal	**na**	11a. How long do you plan to remain a principal?	21b. How long do you plan to remain a principal?
	na	11b. In **how many years** do you plan to retire from your position as a principal?	21c. In **what year** do you **PLAN** to retire from your position as a principal?
Salary	7a. What is your **annual** salary **from this school this year** before taxes and deductions?	12a. What is your current ANNUAL salary for this position before taxes and deductions?	22a. What is your current ANNUAL salary for this position before taxes and deductions?
	7b. For how many months of the year are you employed as the **administrator** in this school?	12b. For how many months of the year are you employed as the **administrator** in this school?	22b. For how many months of the year are you employed as **the principal** in this school?
Benefits	8. Which of these benefits do you receive, in whole or in part, from this school (or district) in addition to your salary?	13. Which of these benefits do you receive, in whole or in part, from this school or district in addition to your salary?	23. Which of these benefits do you receive, in whole or in part, from this school or district in addition to your salary?

Item topic	1987-88	1990-91	1993-94
	1) Housing or housing expenses 2) Meals **3) Tuition for your children** 4) College tuition for yourself 5) General medical insurance 6) Dental insurance 7) Group life insurance 8) Car/transportation expenses 9) Pension contributions **na** 0) None of the above	1) Housing or housing expenses 2) Meals **3) Tuition for your children** 4) College tuition for yourself 5) General medical insurance 6) Dental insurance 7) Group life insurance 8) Car/transportation expenses 9) Pension contributions **na** 0) None of the above	5) Housing or housing expenses 6) Meals **(including free or reduced-price lunch)** **na** **8) Reimbursement for tuition and course fees** 1) General medical insurance 2) Dental insurance 3) Group life insurance 7) Car/transportation expenses 4) Pension contributions **9) Child care** 0) None of the above
	14. For each of the following matters, indicate whether it is a serious problem, a moderate problem, a minor problem, or not a problem in this school.	**14. For each of the following matters,** indicate whether it is a serious problem, a moderate problem, a minor problem, or not a problem in this school.	**24. To what extent is each of the following matters a problem in this school?** Indicate whether it is a serious problem, a moderate problem, a minor problem, or not a problem in this school
school environment	b. Student absenteeism	c. Student absenteeism	b. Student absenteeism
	a. Student tardiness	b. Student tardiness	a. Student tardiness
	c. Teacher absenteeism	a. Teacher absenteeism	c. Teacher absenteeism
	d. Students cutting class	d. Students cutting class	d. Students cutting class
	e. Physical conflicts among students	g. Physical conflicts among students	e. Physical conflicts among students
	f. Robbery or theft	h. Robbery or theft	f. Robbery or theft

BEST COPY AVAILABLE

Item topic	1987-88	1990-91	1993-94
	g. Vandalism of school property	i. Vandalism of school property	g. Vandalism of school property
	h. Student pregnancy	j. Student pregnancy	h. Student pregnancy
	i. Student use of alcohol	k. Student use of alcohol	i. Student use of alcohol
	j. Student drug use	l. Student drug abuse	j. Student drug abuse
	k. Student possession of weapons	m. Student possession of weapons	k. Student possession of weapons
	m. Verbal abuse of teachers	p. Verbal abuse of teachers	l. Verbal abuse of teachers
	na	n. student disrespect for teachers	m. Student disrespect for teachers
	na	e. Students dropping out	n. Students dropping out
	na	f. Student apathy	o. student apathy
	na	q. Lack of academic challenge	p. Lack of academic challenge
	na	r. Lack of parent involvement	q. Lack of parent involvement
	na	s. Parental alcoholism and/or drug abuse	r. Parental alcoholism and/or drug abuse
	na	t. Poverty	s. Poverty
	na	u. Racial tension	t. Racial tension'
	na	na	**u. Students come to school unprepared to learn**
	na	na	**v. Poor nutrition**
	na	na	**w. Poor student health**
	na	na	**x. Student problems with the English language**
	l. Physical abuse of teachers	o. Physical abuse of teachers	na

Item topic	1987-88	1990-91	1993-94
	na	**v. Cultural conflict**	**na**
Decision making influence: Stem	16. Using the scale **1-6**, indicate how much **ACTUAL** influence you think each group or person has on decisions concerning the following activities :	15. Using the scale **1-6**, **where 0 is 'none' and 5 is 'a great deal,'** indicate how much actual influence you think each group or person has on decisions concerning the following activities:	25. Using the scale **0-5**, **where 0 is 'none' and 5 is 'a great deal,'** indicate how much ACTUAL influence you think each group or person has on decisions concerning the following activities:
Establishing curriculum	**na** **na** **1) School district/Governing Board** 2) Principal**/head** 3) Teachers **na** **na** **na**	1) State Department of Education **na** 2) School board 3) Principal 4) Teachers **na** 5) Librarians/media specialists 6) Parent association	1) State Department of Education 2) School district staff 3) School board 4) Principal 5) Teachers 6) Curriculum specialists 7) **Library** media specialists/Librarians 8) Parent association
Hiring new full-time teachers	**na** **na** **1) School district/Governing Board** 2) Principal**/head** 3) Teachers **na**	**na** **na** 1) School board 2) Principal 3) Teachers 4) Parent association	1) State Department of Education 2) School district staff 3) School board 4) Principal 5) Teachers 6) Parent association
Setting discipline policy	**na** **na** **1) School district/Governing Board** 2) Principal**/head** 3) Teachers **na**	1) State Department of Education **na** 2) School board 3) Principal 4) Teachers 5) Parent association	1) State Department of Education 2) School district staff 3) School board 4) Principal 5) Teachers 6) Parent association

BEST COPY AVAILABLE

Item topic	1987-88	1990-91	1993-94
	na **na** **na**	**na** **na** **na**	**Deciding how the school budget will be spent** **Determining content of in-service programs** **Evaluating teachers**
Educational goals: stem	**na**	16. We are interested in the importance you place on various educational goals. From the following eight goals, which do you consider the most important, the second most important, and the third most important?	26. We are interested in the importance you place on various educational goals. From the following eight goals, which do you consider the most important, the second most important, and the third most important?
Educational goals list	**na**	1) Building basic literacy skills (reading, math, writing, speaking) 2) Encouraging academic excellence 3) Promoting occupational or vocational skills 4) Promoting good work habits and self-discipline 5) Promoting personal growth (self-esteem, self-knowledge, etc.) 6) Promoting human relations skills 7) Promoting specific moral values 8) Promoting multicultural awareness or understanding	1) Building basic literacy skills (reading, math, writing, speaking) 2) Encouraging academic excellence 3) Promoting occupational or vocational skills 4) Promoting good work habits and self-discipline 5) Promoting personal growth (self-esteem, self-knowledge, etc.) 6) Promoting human relations skills 7) Promoting specific moral values 8) Promoting multicultural awareness or understanding
Gender	9. Are you male or female?	18. Are you male or female?	27. Are you male or female?

Item topic	1987-88	1990-91	1993-94
Race	10. What is your race? **na**	19a. What is your race? 19b. Are you enrolled in a state or federally recognized tribe?	28a. What is your race? 28b. Are you enrolled in a state or federally recognized tribe?
Hispanic origin	11. Are you of Hispanic origin?	20. Are you of Hispanic origin?	29. Are you of Hispanic origin?
Age	12. What is your year of birth?	21. What is your year of birth?	30. What is your year of birth?

Appendix B. Comparison of Items on the SASS School Questionnaire

Data items comparable between 1987-88, 1990-91, and 1993-94 SASS School Questionnaire (**Differences shown in bold, na=not asked**)

Item topic	1987-88	1990-91	1993-94
Enrollment	**1. How many students (in head counts) were enrolled in grades K-12 in this school on or about October 1, 1987?**	**1. How many students (in head counts) were enrolled in this school in grades K-12 or comparable ungraded levels? Include only students enrolled in the school named on the questionnaire label. Do NOT include prekindergarten or postsecondary students.**	**8. What was the total number of students enrolled in this school around the first of October? (Summing after listing all grades, K-12 and ungraded)**
Minority enrollment	**9. How many students attending this school are** — a. American Indian or Alaskan Native	9. **How many K-12 students in this school are (Do NOT include prekindergarten or postsecondary students): a. American Indian or ...**	9. **Around the first of October, how many students were: Do not include prekindergarten, postsecondary, or adult education students, and children who are enrolled only in day care at this school.** a.American Indian or...
Male enrollment	**4b. What percentage of students enrolled in this school are male?**	4. What **percent** of K-12 students enrolled in this school are males? **Do NOT include prekindergarten or postsecondary students.**	**10. How many** MALE students attended this school **around the first of October?**
Requirements for admission	**15. Which of the following does this school use for admission? (Nine options, with a "None of these (This school has no special requirements for admission)**	16a. Does this school have any special requirements for admission other than proof of immunization, age, or residence?	13a. Does this school have any special requirement for admission other than proof of immunization, age, or residence? (a list of requirement, the most important, **no the second most important**)

BEST COPY AVAILABLE

Item topic	1987-88	1990-91	1993-94
Specific requirements (list)	(1) Admission test, (2) Standardized achievement test, (3) Academic record, (4) Special student needs, (5) Special student aptitudes, (6) Personal interview, (7) Recommendations, **(8) Something else (SPECIFY), (9) None of these (This school has no special requirements for admission)**	(1) Admission test, (2) Standardized achievement test, (3) Academic record, (4) Special student needs, (5) Special student aptitudes, (6) Personal interview, (7) Recommendations	(1) Admission test, (2) Standardized achievement test, (3) Academic record, (4) Special student needs, (5) Special student aptitudes, (6) Personal interview, (7) Recommendations, **(8) None of the above**
Most important criteria	**na**	16c. Of the categories marked for item 16b above, which is the most important consideration for admission **and which is the second most important?**	14c. Of the categories **you** marked for question 13b above, which is the most important consideration for admission?

Item topic	1987-88	1990-91	1993-94
Length of school day	**na**	7. How long is the school day for **most** students in this school? If the length of day varies by grade level, record the longest day.	12. How long is the school day for students in this school? If the length of day varies by grade level, record the longest day.

Item topic	1987-88	1990-91	1993-94
Type of school	**3. Which of the following best describes this school?** (1) REGULAR elementary or secondary, (2) Elementary or secondary with a **special program emphasis** (e.g., science/math **magnet** school, performing arts high school, **gifted/ talented** school **(SPECIFY)**, (3) SPECIAL EDUCATION- **serves primarily handicapped students**, (5) VOCATIONAL/TECHNI CAL **(serves primarily** students being trained for occupations,) (4) ALTERNATIVE (Offers a curriculum designed to **address the needs of students which typically cannot be met in a regular school; provides nontraditional education; may be an adjunct to a regular school. Does not specifically fall into regular, special education or vocational education school categories. (SPECIFY)**	3. What type of school this?(1) REGULAR elementary or secondary, (2) Elementary or secondary with a SPECIAL PROGRAM EMPHASIS e.g., science/math school, performing arts high school, talented/gifted school, **foreign language immersion school, etc.**, (3) SPECIAL EDUCATION- **serves primarily handicapped students**, (4) VOCATIONAL/TECHNIC AL - **serves primarily** students being trained for occupations, (5) ALTERNATIVE - offers a curriculum designed to provide alternative or nontraditional education; does not specifically fall into regular, special education, or vocational school	14. What type of school this? (1) REGULAR elementary or secondary, (2) Elementary or secondary with a SPECIAL PROGRAM EMPHASIS - e.g., science/math school, performing arts high school, talented/gifted school, **foreign language immersion school, etc.**, (3) SPECIAL EDUCATION- primarily serves students with disabilities, (4) VOCATIONAL/TECHNICA L - primarily serves students being trained for occupations, (5) ALTERNATIVE - offers a curriculum designed to provide alternative or nontraditional education; does not specifically fall into **the categories of** regular, special education, or vocational school
# of students absent	**8. What percentage of students were not in attendance today? Include both excused and unexcused absences.**	8. How many **K-12** students were absent the most recent school day? **Include both excused and unexcused absences. Do NOT include prekindergarten or postsecondary students.**	11. How many students were **ABSENT on** the most recent school day?

BEST COPY AVAILABLE

Item topic	1987-88	1990-91	1993-94
Number of staff (Instructions)	**26. For each of the following categories, how many employees regularly worked in this school on or about October 1, 1987? (Report totals in full-time equivalents (FTE's) to the nearest tenth.)**	**31. How many employees hold full- or part-time positions in this school in each of the following categories? If an employee holds a position in more than one of the categories, count that person as part-time in each category that applies**	**16. How many staff held PART-TIME position in this school in each of the following categories around the first of October? INCLUDE AS PART TIME: Employees who work part time, Employees you share with other schools within or outside of the school district, Employees who perform more than one function at this school; for example, a teaching principal would be counted once as a part-time teacher and again as a part-time principal.** **17. How many staff held FULL-TIME positions in this school in each of the following categories around the first of October?**
	a. Principals and assistant principals	a. Principal(s)	a. Principals
	see above	b. Assistant principal(s)	b. **Vice principals and assistant principals**
	c. Guidance counselors	**c. Guidance counselors**	**d. School counselors**
	na	**d. Vocational counselor**	**d. School counselors**
	d. Librarians and other professional media staff	**e. Librarians and other professional media staff**	**e. Library media specialists/ librarians**
	na	h. Library **or** media center aides	h. Library media center aides

BEST COPY AVAILABLE

Item topic	1987-88	1990-91	1993-94
	e. Other professional staff such as curriculum specialists, administrative and business staff, and social workers	**f. Other professional staff such as curriculum specialists, administrative and business staff, social workers, and health professionals**	**c. Instructional coordinators & supervisors, such as curriculum specialists**
	na	**na**	**f. Student support services professional staff, such as school psychologists, social workers, occupational therapists, speech therapists, and nurses**
	na	**na**	**j. Secretaries and other clerical support staff**
	na	**i. All other noninstructional staff (include maintenance, food service, and clerical staff)**	**k. Other employees (e.g., cafeteria workers, maintenance staff, etc.)**
	f. Teacher aides **(paraprofessionals who assist teachers)**	**g. Classroom** teacher aides **(paraprofessionals who assist classroom teachers)**	i. Teacher aides
	b. Teachers (different definition — exclude substitute)	**24a. How many K-12 teachers have FULL-TIME teaching positions at THIS school?** **24b. How many K-12 teachers have PART-TIME teaching positions at THIS school? Include itinerant teachers.**	g. Teachers **(Long, detailed definitions and instructions. Includes some substitutes)**

Item topic	1987-88	1990-91	1993-94
Minority teachers	**10. How many teachers in this school are — (race categories)**	25. **How many K-12 teachers in this school are — (race categories) Include both full- and part-time teachers**	18. **Around the first of October, how many part-time and full-time TEACHERS in this school were: (race categories) Do not include teachers who teach ONLY prekindergarten, postsecondary, or adult education**
Teacher absence	**na**	26. How many **K-12** teachers were absent the most recent school day? **Include both** full- and part-time teachers.	19. How many part-time and full-time teachers were absent the most recent school day?
Program filter item	11. For each of the following programs or services, please indicate whether it is available to students in this school, either during or outside of regular school hours, and regardless of funding sources. **If you mark "Yes" for a program or service, record the number of students served.**	10. For each of the following programs or services, please indicate whether it is available to students in this school, either during or outside of regular school hours, and regardless of funding sources. **Do not include prekindergarten or postsecondary students.** IF YES: How many students participate in this program/received this service?	**22. Please indicate whether each of the following programs or services is currently available at this school either during or outside of regular school hours, and regardless of funding. Do not include programs available only to prekindergarten students. Include only those who are enrolled in this school. Do not include prekindergarten, postsecondary, or adult education students, and children who are enrolled only in day care at this school.** IF YES: How many students participate in this program?

BEST COPY AVAILABLE

Item topic	1987-88	1990-91	1993-94
Programs & services offered # of students participated	c. Remedial reading - organized compensatory, diagnostic, and remedial activities designed to correct and prevent difficulties in the development of reading skills.	c. Remedial reading - organized compensatory, diagnostic, and remedial activities designed to correct and prevent difficulties in the development of reading skills.	a. Remedial reading - organized compensatory, diagnostic, and remedial activities designed to correct and prevent difficulties in the development of reading skills. **Includes remedial reading instruction that is part of special education and Chapter 1 programs, as well as other remedial reading programs.**
	d. Remedial mathematics - organized compensatory, diagnostic, and remedial activities designed to correct and prevent difficulties in the development of mathematics skills.	d. Remedial mathematics - organized compensatory, diagnostic, and remedial activities designed to correct and prevent difficulties in the development of mathematics skills.	b. Remedial mathematics - organized compensatory, diagnostic, and remedial activities designed to correct and prevent difficulties in the development of mathematics skills. **Includes remedial math instruction that is part of special education and Chapter 1 programs, as well as other remedial math programs.**
	e. Programs for **the handicapped** - Instruction for the mentally retarded, specific learning disabled, physically **handicapped**, and other **handicapped**.	e. Programs for **handicapped students** - instruction for the mentally retarded, specific learning disabled, physically **handicapped**, and other **handicapped**.	c. Programs for **students with disabilities** - Instruction for the mentally retarded, specific learning disabled, physically **disabled**, and other **students with disabilities.**
	f. Programs for the gifted and talented - activities designed to permit gifted and talented students to further develop their abilities.	f. Programs for the gifted and talented - activities designed to permit gifted and talented students to further develop their abilities.	d. Programs for the gifted and talented - Activities designed to permit gifted and talented students to further develop their abilities.
	i. Extended day or before- or after-school day-care programs	h. Extended day or before- or after-school day-care programs	e. Extended day or before- or after-school day-care programs

Item topic	1987-88	1990-91	1993-94
	b. English as a Second Language - Students with limited English proficiency are provided with intensive instruction in English.	a. English as a Second Language - Students with limited English proficiency are provided with intensive instruction in English.	f. English as a Second Language - Students with limited English proficiency are provided with intensive instruction in English.
	a. Bilingual education - Native language is used to varying degrees in instructing students with limited English proficiency. **(Includes, for example, transitional bilingual education and structured immersion.)**	b. Bilingual education - native language is used to varying degrees in instructing students with limited English proficiency. **For example, transitional bilingual education and structured immersion.**	g. Bilingual education - Native language is used to varying degrees in instructing students with limited English proficiency. **For example, transitional bilingual education and structured immersion. Do not include foreign language classes or foreign language immersion programs.**
	h. Diagnostic & prescriptive services - services provided by trained professionals to diagnose learning problems of students and to plan and provide therapeutic or educational programs based upon such services.	g. Diagnostic & prescriptive services - services provided by trained professionals to diagnose learning problems of students and to plan and provide therapeutic or educational programs based upon such services.	h. Diagnostic & prescriptive services - Services provided by trained professionals to diagnose learning problems of students and to plan and provide therapeutic or educational programs based upon such services.
	na	na	**i. Medical health care services - Services provided by trained professionals (e.g., physician, physician assistant, nurse, or nurse practitioner) to diagnose and treat health problems of students.**
Library	na	13. Does this school have a library/media center?	23. Does this school have a media center/**library**?

BEST COPY AVAILABLE

Item topic	1987-88	1990-91	1993-94
Kindergarten program	**16a. For what grade levels does your school offer instruction? (KG option)**	**12a. Does** this school offer a KINDERGARTEN program?	**25a. Around the first of October, did** this school offer a kindergarten program?
length of school day (KG)	**na**	12c. How long is the school day for **the kindergarten program**?	25b. How long is the school day for **a kindergarten student**?
length of school week (KG)	na	12b. How many **days** per week do the kindergarten students attend this school?	25c. How many **times** per week does a kindergarten student attend? **If the number of days per week varies (e.g., some students attend 3 days per week and some attend 5 days per week), record the most days that a student would attend in a week.**
Chapter 1	**12a. Does this school provide ECIA Chapter 1 services?**	**14a. Does this school provide Chapter 1 services under the Elementary and Secondary Education Act as amended, i.e., federal funds for the special educational needs of disadvantaged children?**	**27a. Around the first of October, did any students enrolled in this school receive Chapter 1 services at this school, or any other location? Chapter 1 is a federally-funded program which provides educational services, such as remedial reading or remedial math, to children who live in areas with high concentrations of low-income families.**
Chapter 1 enrollment	**12b. How many students are served?**	14b. How many students **are served**	27b. How many students **enrolled in this school received Chapter 1 services at this school, or any other location? Report a separate count for prekindergarten-age children.**

Item topic	1987-88	1990-91	1993-94
Chapter 1 staffing	**na**	13c. How many Chapter 1 teachers and/or teacher aides **are** at this school?	27c. **In head counts,** how many Chapter 1 teachers and teacher aides **were** teaching at this school around the first of October?
Free/reduced price lunch Program eligibility	13a. Are any of the students in this school eligible for free or reduced- price lunches that are paid for with public funds, e.g., Federal government or other government?	15a. Are any of the students in this school eligible for free or reduced-price lunches that are paid for with public funds, e.g., Federal government or other government? (yes, no)	**28b. Regardless of whether this school participates in this National School Lunch Program, were any students in this school ELIGIBLE for the program? (yes, no, don't know)**
Program participation	**Inferable from next item**	**Inferable from next item**	**28a. Does this school participate in the National School Lunch Program?**
Number of students participating	13c. How many students **receive** free or reduced price lunches?	15b. How many students **receive** free or reduced-price lunches?	28d. **Around the first of October, how many students at this school** received free or reduced-price lunches **through the National School Lunch Program? This number may differ from the number of applicants approved, depending upon how the program is implemented. Report a separate count for prekindergarten-age students.**
Number of students approved	na	**na**	**28c. Around the first of October, how many applicants at this school were approved for the National School Lunch Program?**

Item topic	1987-88	1990-91	1993-94
Voc./tech. program	**28f. (PART OF PROGRAM/ SERVICES ITEM) Vocational or technical programs - instruction designed to provide students with occupational skills needed for work**	**21a. Does this school offer a vocational/technical program?**	**29c. Does this school have a "Tech-Prep" program, i.e., vocational/ technical instruction in the last two years of high school designed to prepare students for two years of vocational instruction at the postsecondary level? NOTE: This item follows a filter question asking if there are 12th grade students.**
Grade 12 presence	**16a. For what grade levels does your school offer instruction (Grade 12 listed)**	19. Does this school **(the school named on the questionnaire label)** provide instruction for grade 12?	29a. Does this school provide instruction **to students in** grade 12?
Grade 12 enrollment: previous year	**19. How many students were enrolled in 12th grade on or about October 1, 1986 (last year)?**	23a. LAST SCHOOL YEAR, how many students were enrolled in 12th grade?	30a. Last school year, **were any students enrolled in 12th grade? How many students?**
Graduation rate	20. How many students were graduated from 12th grade last year? Include 1987 summer graduates.	23b. How many students were graduated from the 12th grade last year? Include 1990 summer graduates.	30c. How many students were graduated from the 12th grade last year? Include 1993 summer graduates. **Do not include students who received only vocational certificates, certificates of attendance, or certificates of completion.**
College application	**21. What is the estimated percentage of last year's graduates that applied to a two- or four-year college?**	23c. How many of last year's graduates applied to two- or four-year colleges?	30d. How many of last year's graduates applied to two- or four-year colleges?

Item topic	1987-88	1990-91	1993-94
Teaching vacancies	**na**	33a. Were there teaching vacancies in this school for this school year, i.e., teaching positions for which teachers were recruited and interviewed?	20a. Were there teaching vacancies in this school for this school year, i.e., teaching positions for which teachers were recruited and interviewed?
Methods used to fill vacancies	**na**	33c. Which of these methods did this school use to cover the vacancy(ies)?	20b. Which of these methods did this school use to cover the vacancy(ies)?
	na	**na**	**1) Hired a fully qualified teacher**
	na	7) Hired **a less qualified** teacher	2) Hired **less than fully qualified** teacher
	na	1) Cancelled planned course offerings	3) Canceled planned course offerings
	na	2) Expanded some class sizes	4) Expanded some class sizes
	na	3) Added sections to other teachers' normal teaching loads	5) Added sections to other teachers' normal teaching loads
	na	4) Assigned a teacher of another subject or grade level to teach those classes	6) Assigned a teacher of another subject or grade level to teach those classes
	na	**na**	**7) Assigned an administrator or counselor to teach the class**
	na	5) Used long-term **and**/or short-term substitutes	8) Used long-term or short-term substitutes
	na	**6) Used part-time or itinerant teachers**	**na**

BEST COPY AVAILABLE

Item topic	1987-88	1990-91	1993-94
Difficulty in hiring different types of teachers	**na**	33d. How difficult or easy was it to fill the vacancies for this school year in each of the following fields: (1) General elementary, (2) special education, (3) English, (4) Mathematics, (5) Physical sciences, (6) Biology or life sciences, **(7) English as a second language (ESL) or bilingual education,** (8) Foreign language, **(9) Vocational education**	20c. How difficult or easy was it to fill the vacancies for this school year in each of the following fields: **Includes a "Not applicable in this school option"** (1) general elementary, (2) special education, (3)English, (4) Mathematics, (5) Physical sciences, (6) Biology or life sciences, **(7)English as a Second Language (ESL), English for Speakers of Other Languages (ESOL), or bilingual education,** (8) Foreign languages, **(9) Music, (10) Business or Marketing, (11) Industrial arts, (12) Home economics, (13) Trade and industry, (14) Agriculture**

Appendix C. Memo: Thoughts on a Longitudinal Survey of Schools and Educational Reform

TO: Dan Kasprzyk, NCES
Mary Rollefson, NCES
FROM: David Baker, ESSI
Date: 1/13/97
RE: Thoughts on a Longitudinal Survey of Schools and Educational Reform

As per your request, I have collected some of my thoughts on the relative costs and benefits of the use of a longitudinal design to obtain information on schools and educational reform in the next SASS survey. Many of these ideas originate from the in-progress ESSI feasibility study that analyzes the "overlap 1990-91 and 1993-94 SASS sample," (i.e. Baker forthcoming). Before I present my thoughts and recommendations on these issues, I will briefly describe the capability of the current, cross-sectional SASS to study schooling over time.

SASS has used a newly drawn sample of districts and schools for each of its three data collections; or, in other words, SASS is three separate cross-sectional surveys collected three years apart. But, although successive surveys have added new items, many of the same items have been collected at each wave. Therefore, unlike a one-time survey, SASS is a repeated, cross-sectional survey that can provide national and state estimates of variables at different points in time (i.e. simple trends). But because different schools are surveyed, the SASS cannot provide information on the dynamics of educational change at the school and district levels. Even though this is true for the full SASS public school sample, there is the capability in SASS to provide some information on a subset of schools over time.

To reduce sampling error, the 1990-91 and 1993-94 SASSs purposefully sampled a number (about 30%) of districts and schools that had been surveyed in the previous SASS wave. Although this so-called "overlap sample" has never been used for substantive reporting, data from responses to the school questionnaire provide a view of what a longitudinal, panel (i.e. same schools over time) study might yield on the SASS items developed for a cross-sectional survey. (See the attached description of the feasibility study of the overlap sample.)

I. What questions could a longitudinal survey of K-12th grade schools answer about reform?

Regardless of whether one or many reforms are of interest, there are at least two basic questions about reform that longitudinal information on districts or schools could help to answer:

1. What is the pattern of implementation of reformed school policies and practices across place and time?
2. What school outcomes, if any, are attributable to reforms?

In the case of the first question, longitudinal information would enhance the quality of the answer that a cross-sectional survey could provide. For examples, while the cross-section SASS could provide information on the numbers of schools which use school-based management procedures, a longitudinal study would provide detailed information on which schools changed to more (or less) school-based management over a specific time period. But in the case of the second question, some type of a longitudinal design would be essential to providing a valid answer. Without pre-reform measures of outcomes such as achievement,

teacher satisfaction, drop-out rates, and so forth for schools, attributing effects to reformed practices becomes questionable.

II. What are the relative costs and benefits of a longitudinal design for information on education reform in SASS?

Benefits: Without a doubt there is an initial attractiveness of longitudinal study of reform. The notion of collecting useful information on the adoption and impact of educational reform of American schools is easily tied to considering some sort of a longitudinal survey design. Even the simplest of over time designs, such as following a penal across just two times points, has a clear appeal and usefulness in assessing the impact of new practices. Reforms are really changes in operating policy and practice, and thus they can be thought of as quasi-experimental treatments whose impact can be assessed by comparing a school's functioning before and after implementation (question 2 above). And of course, there are more elaborate longitudinal designs available to compare reformed schools with unreformed schools over time.

Besides impact of reform, longitudinal designs also come to mind when considering ways to gather information on impetus for reforms and their implementation across districts and schools (question 1 above). The political environments of districts and schools are complex and the impetus for reform comes from a variety of sources without much, if any, centralized policy-setting in the nation. Therefore, although the national reform message may be more or less clear, reform is locally adopted and implemented. Within some broad common understanding of any single reform, corresponding policy and practice changes will rarely, if ever, be uniform across the numerous LEA's and schools. Some districts and schools will adopt reform while others will not, and the timing of adoption will vary as well. Also, among those that choose to adopt reform, actual implementation can take different forms. Thus, although national education politics often produce pressure for educational change, the results of this pressure, falling upon a localized system, can yield substantial variation in reformed practice from location to location over time. Examining implementation over time across a panel of districts and/or schools is an attractive way to gather useful information on how reforms spread across the nation.
This kind of reasoning has motivated recommendations to NCES for longitudinal approaches to other parts of its statistical portfolio (e.g. Singer and Willett 1996). The argument is that full-blown, multiple-waved longitudinal designs provide more information, and dynamically richer information, than simple cross-sections.

This is true. Compared to a repeated, cross-sectional survey, a longitudinal panel of schools should provide a richer array of information. Even though SASS yields some basic information on trends over time and this could be exploited more effectively than it currently is, what is missing is more complex information on the dynamics of school change. Information such as which schools implemented a reform, how often during the time spell did they change practices, and what were the antecedents of adopting a reform is only provided through panel designs. Also the whole question of outcomes, as described above, is answered more rigorously with panel data. Another repeated cross-section of SASS, even without any longitudinal component, could provide some important reform information on adoption of reforms. But without some type of longitudinal design, the richer, and perhaps the more valuable, information on change related to reform will not be provided.

Thus, in the abstract, longitudinal designs are hard to reject. It is akin to trying to argue in principle against larger and more stratified samples. Given the obvious attraction of longitudinal designs for collecting

information on educational reform, are there any drawbacks to recommending such a design for the next SASS?

Costs: One problem is the cost of redesigning items and of increased response burden for a longitudinal design as applied to specific issues of reform in SASS. SASS is not a new survey and there are many items which need to be handled with some continuity. Any longitudinal design examining specific reform issues will have to be worked into the existing SASS structure and this presents some obstacles
Operational costs of a longitudinal survey of districts and schools would probably not be significantly higher than those of the current design, but there could be some additional costs to a longitudinal design. Further, costs to develop items that maximize the time dimension of a longitudinal design on reform can be considerable.

What has been clear so far from the analysis of the SASS overlap sample (see attached Feasibility Study Results), which just repeated the SASS cross-sectional items over a three year span, is that there is not much basic structural change in schools (i.e. grad-span, school size, staff size). Probably most of the short-term change in schools is in policies and practices. For example, NCES's study of tracking policies found that schools within a five year period often changed their tracking practices (Carey, Farris, and Carpenter, 1994); almost sixty percent of schools had changed their tracking policy in the last five years and about one half of schools were considering new modifications.

Changes in school operation, not structure, are precisely where most implemented reforms would exist, but operations of schools are hard to measure. Also they may change often, particularly in politically contested areas of schooling. Since the current SASS does not focus very much on the dynamics of school policy setting and operation, there would probably not be much added information from just repeating current SASS items to a full panel of schools. To make SASS items yield more information, particularly about policy and practices, would require extensive redesign, especially for the proposed six-year spell between data collection waves.

For example, although its not recommended here, one could propose to resample the entire 1993-94 sample, adding retrospective items on policy and practice changes related to specific reform issues such as school-based management. Developing answerable, six-year retrospective items on school operation for all of the different types of schools included in the full SASS sample would be a large, and perhaps costly, undertaking. Items which require schools to dip into their institutional memory are easily prone to measurement error, therefore, valid items would take extra design efforts. Further there are response burden costs hidden in an extensive retrospective panel study. Items which are more sensitive to time issues usually require more response time, often significantly so.

II. Are the costs worth the benefits?

Would the costs for significant longitudinal redesign be worth it in terms of information payoff for NCES? Certainly school organizational reform is politically important to a large part of the American educational establishment and the public. And as described in Pechman et al (1996), many of the current reforms focus directly on the general areas of school management that SASS tried, in a limited way, to capture on the last two waves. Also as described above, longitudinal designs have some appeal to collecting information to answer key questions about the impact, the spread, and variation in reforms in districts and schools.

But at the same time, to justify the costs of a large, longitudinal redesign, NCES would have to be convinced that reports on the more complex nature of school change, as outlined above, are worth the investment. Keep in mind too, that in the past the agency has not taken full advantage of the longitudinal nature of its surveys of students. To maximize an investment in a longitudinal survey of schools on reform, NCES would have to plan to produce far more complex analyses and reports than it currently does.

IV. Are there alternative designs?

It may be better to consider some alternatives to a full SASS panel design. Instead of undertaking the costs to redesign the entire SASS to be an effective longitudinal survey on reform and other issues, perhaps NCES should consider smaller-scale, focused studies built upon the large cross-section school sample of SASS. While there would still be some design costs associated with developing useful items, a smaller, more focused approach to gathering school reform information over time might be more manageable.

For example, in the curricular tracking FRSS, a smaller, nationally representative sample of public high schools (n=990) that had participated in the 1990-91 SASS collection was surveyed in 1993 as to their tracking policies and practices. The questionnaire included some explicitly longitudinal items on tracking, such as how often a school's tracking policy had been modified in the last five years. And the survey could have included many more, such as specific histories of policy change. All of the other considerable information about each school from the SASS collection was available for analysis of the tracking issues. (The analysis of the overlap sample shows that most of the demographics and the basic organization of schools does not change over three years.)

A similar design could be considered for reform issues. A small subset of schools from the full SASS sample could be resurveyed, perhaps annually, with a focus on reform issues. Almost all of the response time could be dedicated to the reform issues, thus keeping response burden relatively low. Also designing a special questionnaire, to be administered at a different time, to a smaller set of schools, will probably require less effort than trying to place longitudinal items within the main SASS data collection for all schools. Of course, this smaller sample would not support state level estimates. But here too NCES should consider some alternatives. Some selection of useful comparisons across a small number of states as to reform issues might serve as the basis of a small longitudinal add-on to SASS.

V. If some alternative longitudinal design is used, what are the other design issues that need to be considered?

1. Which SASS sample should an alternative study begin with?

There are two alternatives. One could resample part of the 1993-94 SASS school sample and develop new reform items. This could be done as a focused FRSS-type survey before the 1999-2000 collection and then be followed-up as part of the main 1999-2000 collection and then again in the 2005 SASS.

Selected schools would provide only current reform information instead of retrospective information back to 1993-94, but the basic SASS structural information from 1993-94 could be used. Some baseline implementation information could be ready even before the 1999-2000 SASS, but any outcome information would still have to wait until after 1999-2000 collection. The advantage is that this provides

some information soon, but with the cost of adding a significant design task that is concurrent with the planning of the rest of the next SASS. The other option is to start any alternative studies with the 1999-2000 collection. This means a longer wait for both implementation and outcome information, but provides more time to think through design and content issues.

2. Which kinds of schools should a study include?

Although this question is not necessarily related to whether or not some sort of longitudinal design should be used to collect information on reforms, it is worth considering here too. Most of the reform debates have been aimed at the public sector of K-12 schooling. Although the private sector has played a role in the debate as points of comparisons, not much if anything has been said about whether current reforms with have an impact on private schools. Regardless of the prevailing myths, private schools may need reforms too. Also, as a recent SASS report indicates, large portions of the private sector are organizationally, and perhaps operationally, not much different from large portions of the private sector are organizationally, and perhaps operationally, not much different from large portions (Baker et al. 1996) of the public sector. Thus current reforms could be relevant to many private schools. Further, SASS has always reported on the full range of schools public and private, including all types of private schools and public schools such as schools for Native Americans. But the diversity of private schools might make it difficult to develop useable items on reforms.

3. Broad versus focused reforms?

Another design issue to be considered is which reforms? A focused smaller study lends itself to covering just a few key reform issues.

4. National versus state?

As mentioned above, it would not be possible in a smaller sample to have representative samples from each state. Rather certainly nationally representative samples are crucial, and if there are resources available, a selected number of states that yield interesting comparisons might be useful.

Recommendations

Although some sort of longitudinal design for SASS would provide useful information on educational reform, both the hidden design costs and loss of continuity in the cross-sectional time series probably does not warrant a full panel, longitudinal study for the entire SASS.

Instead, small-scale, longitudinal designs that are alternatives to a full panel design should be considered as a way to capture some important time varying information on reform.

Operational costs for a panel design of districts and schools are not significantly higher than those for a repeated cross-section design, but costs to re-design SASS items to take advantage of the time dimension of a panel design can be substantial. Also truly longitudinal items may significantly increase response burden. It is probably not worth the effort to design retrospective items for any sample of 1993-94 schools, rather start prospectively, either with a sub-sample of the 1993-94 as baseline, or with a subsample of the 1999-2000 as baseline.

Organizational impact (outcomes) of reforms will be relatively hard to measure in SASS, regardless of the longitudinal nature of the design. But information on impetuses and implementations of policy and practice associated with many current reforms can be accurately collected, and some longitudinal component would strengthen NCES reporting capabilities.

References

Baker, David (Forthcoming), "A Feasibility Study of Longitudinal Design for Schools and Staffing Survey." *Education Statistical Services Institute Report*, NCES.

Baker, D., Han, M. and S. Broughman. 1996. *How Different, How Similar?: Comparing Key Organizational Qualities of American Public and Private Secondary Schools.* U.S. Dept. of Education, NCES 96-322.

Pechman, E., O'Brien, and Wodatch, J. 1996. "Measuring School Reform: Recommendations for Future SASS Data Collections." *Educational Statistical Services Institute Report*, NCES.

Singer, J. and Willett, J. 1996. "Methodological Issues in the Design of Longitudinal Research: Principles and Recommendations for a Quantitative Study of Teacher's Careers." *Educational Evaluation and Policy Analysis* 18, 4, 265-83.

Listing of NCES Working Papers to Date

Please contact Angela Miles at (202) 219-1761 (angela_miles@ed.gov)
if you are interested in any of the following papers

Number	Title	Contact
94-01 (July)	Schools and Staffing Survey (SASS) Papers Presented at Meetings of the American Statistical Association	Dan Kasprzyk
94-02 (July)	Generalized Variance Estimate for Schools and Staffing Survey (SASS)	Dan Kasprzyk
94-03 (July)	1991 Schools and Staffing Survey (SASS) Reinterview Response Variance Report	Dan Kasprzyk
94-04 (July)	The Accuracy of Teachers' Self-reports on their Postsecondary Education: Teacher Transcript Study, Schools and Staffing Survey	Dan Kasprzyk
94-05 (July)	Cost-of-Education Differentials Across the States	William Fowler
94-06 (July)	Six Papers on Teachers from the 1990-91 Schools and Staffing Survey and Other Related Surveys	Dan Kasprzyk
94-07 (Nov.)	Data Comparability and Public Policy: New Interest in Public Library Data Papers Presented at Meetings of the American Statistical Association	Carrol Kindel
95-01 (Jan.)	Schools and Staffing Survey: 1994 Papers Presented at the 1994 Meeting of the American Statistical Association	Dan Kasprzyk
95-02 (Jan.)	QED Estimates of the 1990-91 Schools and Staffing Survey: Deriving and Comparing QED School Estimates with CCD Estimates	Dan Kasprzyk
95-03 (Jan.)	Schools and Staffing Survey: 1990-91 SASS Cross-Questionnaire Analysis	Dan Kasprzyk
95-04 (Jan.)	National Education Longitudinal Study of 1988: Second Follow-up Questionnaire Content Areas and Research Issues	Jeffrey Owings
95-05 (Jan.)	National Education Longitudinal Study of 1988: Conducting Trend Analyses of NLS-72, HS&B, and NELS:88 Seniors	Jeffrey Owings

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
95-06 (Jan.)	National Education Longitudinal Study of 1988: Conducting Cross-Cohort Comparisons Using HS&B, NAEP, and NELS:88 Academic Transcript Data	Jeffrey Owings
95-07 (Jan.)	National Education Longitudinal Study of 1988: Conducting Trend Analyses HS&B and NELS:88 Sophomore Cohort Dropouts	Jeffrey Owings
95-08 (Feb.)	CCD Adjustment to the 1990-91 SASS: A Comparison of Estimates	Dan Kasprzyk
95-09 (Feb.)	The Results of the 1993 Teacher List Validation Study (TLVS)	Dan Kasprzyk
95-10 (Feb.)	The Results of the 1991-92 Teacher Follow-up Survey (TFS) Reinterview and Extensive Reconciliation	Dan Kasprzyk
95-11 (Mar.)	Measuring Instruction, Curriculum Content, and Instructional Resources: The Status of Recent Work	Sharon Bobbitt & John Ralph
95-12 (Mar.)	Rural Education Data User's Guide	Samuel Peng
95-13 (Mar.)	Assessing Students with Disabilities and Limited English Proficiency	James Houser
95-14 (Mar.)	Empirical Evaluation of Social, Psychological, & Educational Construct Variables Used in NCES Surveys	Samuel Peng
95-15 (Apr.)	Classroom Instructional Processes: A Review of Existing Measurement Approaches and Their Applicability for the Teacher Follow-up Survey	Sharon Bobbitt
95-16 (Apr.)	Intersurvey Consistency in NCES Private School Surveys	Steven Kaufman
95-17 (May)	Estimates of Expenditures for Private K-12 Schools	Stephen Broughman
95-18 (Nov.)	An Agenda for Research on Teachers and Schools: Revisiting NCES' Schools and Staffing Survey	Dan Kasprzyk
96-01 (Jan.)	Methodological Issues in the Study of Teachers' Careers: Critical Features of a Truly Longitudinal Study	Dan Kasprzyk

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
96-02 (Feb.)	Schools and Staffing Survey (SASS): 1995 Selected papers presented at the 1995 Meeting of the American Statistical Association	Dan Kasprzyk
96-03 (Feb.)	National Education Longitudinal Study of 1988 (NELS:88) Research Framework and Issues	Jeffrey Owings
96-04 (Feb.)	Census Mapping Project/School District Data Book	Tai Phan
96-05 (Feb.)	Cognitive Research on the Teacher Listing Form for the Schools and Staffing Survey	Dan Kasprzyk
96-06 (Mar.)	The Schools and Staffing Survey (SASS) for 1998-99: Design Recommendations to Inform Broad Education Policy	Dan Kasprzyk
96-07 (Mar.)	Should SASS Measure Instructional Processes and Teacher Effectiveness?	Dan Kasprzyk
96-08 (Apr.)	How Accurate are Teacher Judgments of Students' Academic Performance?	Jerry West
96-09 (Apr.)	Making Data Relevant for Policy Discussions: Redesigning the School Administrator Questionnaire for the 1998-99 SASS	Dan Kasprzyk
96-10 (Apr.)	1998-99 Schools and Staffing Survey: Issues Related to Survey Depth	Dan Kasprzyk
96-11 (June)	Towards an Organizational Database on America's Schools: A Proposal for the Future of SASS, with comments on School Reform, Governance, and Finance	Dan Kasprzyk
96-12 (June)	Predictors of Retention, Transfer, and Attrition of Special and General Education Teachers: Data from the 1989 Teacher Followup Survey	Dan Kasprzyk
96-13 (June)	Estimation of Response Bias in the NHES:95 Adult Education Survey	Steven Kaufman
96-14 (June)	The 1995 National Household Education Survey: Reinterview Results for the Adult Education Component	Steven Kaufman

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
96-15 (June)	Nested Structures: District-Level Data in the Schools and Staffing Survey	Dan Kasprzyk
96-16 (June)	Strategies for Collecting Finance Data from Private Schools	Stephen Broughman
96-17 (July)	National Postsecondary Student Aid Study: 1996 Field Test Methodology Report	Andrew G. Malizio
96-18 (Aug.)	Assessment of Social Competence, Adaptive Behaviors, and Approaches to Learning with Young Children	Jerry West
96-19 (Oct.)	Assessment and Analysis of School-Level Expenditures	William Fowler
96-20 (Oct.)	1991 National Household Education Survey (NHES:91) Questionnaires: Screener, Early Childhood Education, and Adult Education	Kathryn Chandler
96-21 (Oct.)	1993 National Household Education Survey (NHES:93) Questionnaires: Screener, School Readiness, and School Safety and Discipline	Kathryn Chandler
96-22 (Oct.)	1995 National Household Education Survey (NHES:95) Questionnaires: Screener, Early Childhood Program Participation, and Adult Education	Kathryn Chandler
96-23 (Oct.)	Linking Student Data to SASS: Why, When, How	Dan Kasprzyk
96-24 (Oct.)	National Assessments of Teacher Quality	Dan Kasprzyk
96-25 (Oct.)	Measures of Inservice Professional Development: Suggested Items for the 1998-1999 Schools and Staffing Survey	Dan Kasprzyk
96-26 (Nov.)	Improving the Coverage of Private Elementary-Secondary Schools	Steven Kaufman
96-27 (Nov.)	Intersurvey Consistency in NCES Private School Surveys for 1993-94	Steven Kaufman

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
96-28 (Nov.)	Student Learning, Teaching Quality, and Professional Development: Theoretical Linkages, Current Measurement, and Recommendations for Future Data Collection	Mary Rollefson
96-29 (Nov.)	Undercoverage Bias in Estimates of Characteristics of Adults and 0- to 2-Year-Olds in the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
96-30 (Dec.)	Comparison of Estimates from the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
97-01 (Feb.)	Selected Papers on Education Surveys: Papers Presented at the 1996 Meeting of the American Statistical Association	Dan Kasprzyk
97-02 (Feb.)	Telephone Coverage Bias and Recorded Interviews in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-03 (Feb.)	1991 and 1995 National Household Education Survey Questionnaires: NHES:91 Screener, NHES:91 Adult Education, NHES:95 Basic Screener, and NHES:95 Adult Education	Kathryn Chandler
97-04 (Feb.)	Design, Data Collection, Monitoring, Interview Administration Time, and Data Editing in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-05 (Feb.)	Unit and Item Response, Weighting, and Imputation Procedures in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-06 (Feb.)	Unit and Item Response, Weighting, and Imputation Procedures in the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
97-07 (Mar.)	The Determinants of Per-Pupil Expenditures in Private Elementary and Secondary Schools: An Exploratory Analysis	Stephen Broughman
97-08 (Mar.)	Design, Data Collection, Interview Timing, and Data Editing in the 1995 National Household Education Survey	Kathryn Chandler

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
97-09 (Apr.)	Status of Data on Crime and Violence in Schools: Final Report	Lee Hoffman
97-10 (Apr.)	Report of Cognitive Research on the Public and Private School Teacher Questionnaires for the Schools and Staffing Survey 1993-94 School Year	Dan Kasprzyk
97-11 (Apr.)	International Comparisons of Inservice Professional Development	Dan Kasprzyk
97-12 (Apr.)	Measuring School Reform: Recommendations for Future SASS Data Collection	Mary Rollefson
97-13 (Apr.)	Improving Data Quality in NCES: Database-to-Report Process	Susan Ahmed
97-14 (Apr.)	Optimal Choice of Periodicities for the Schools and Staffing Survey: Modeling and Analysis	Steven Kaufman
97-15 (May)	Customer Service Survey: Common Core of Data Coordinators	Lee Hoffman
97-16 (May)	International Education Expenditure Comparability Study: Final Report, Volume I	Shelley Burns
97-17 (May)	International Education Expenditure Comparability Study: Final Report, Volume II, Quantitative Analysis of Expenditure Comparability	Shelley Burns
97-18 (June)	Improving the Mail Return Rates of SASS Surveys: A Review of the Literature	Steven Kaufman
97-19 (June)	National Household Education Survey of 1995: Adult Education Course Coding Manual	Peter Stowe
97-20 (June)	National Household Education Survey of 1995: Adult Education Course Code Merge Files User's Guide	Peter Stowe
97-21 (June)	Statistics for Policymakers or Everything You Wanted to Know About Statistics But Thought You Could Never Understand	Susan Ahmed
97-22 (July)	Collection of Private School Finance Data: Development of a Questionnaire	Stephen Broughman

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
97-23 (July)	Further Cognitive Research on the Schools and Staffing Survey (SASS) Teacher Listing Form	Dan Kasprzyk
97-24 (Aug.)	Formulating a Design for the ECLS: A Review of Longitudinal Studies	Jerry West
97-25 (Aug.)	1996 National Household Education Survey (NHES:96) Questionnaires: Screener/Household and Library, Parent and Family Involvement in Education and Civic Involvement, Youth Civic Involvement, and Adult Civic Involvement	Kathryn Chandler
97-26 (Oct.)	Strategies for Improving Accuracy of Postsecondary Faculty Lists	Linda Zimbler
97-27 (Oct.)	Pilot Test of IPEDS Finance Survey	Peter Stowe
97-28 (Oct.)	Comparison of Estimates in the 1996 National Household Education Survey	Kathryn Chandler
97-29 (Oct.)	Can State Assessment Data be Used to Reduce State NAEP Sample Sizes?	Steven Gorman
97-30 (Oct.)	ACT's NAEP Redesign Project: Assessment Design is the Key to Useful and Stable Assessment Results	Steven Gorman
97-31 (Oct.)	NAEP Reconfigured: An Integrated Redesign of the National Assessment of Educational Progress	Steven Gorman
97-32 (Oct.)	Innovative Solutions to Intractable Large Scale Assessment (Problem 2: Background Questionnaires)	Steven Gorman
97-33 (Oct.)	Adult Literacy: An International Perspective	Marilyn Binkley
97-34 (Oct.)	Comparison of Estimates from the 1993 National Household Education Survey	Kathryn Chandler
97-35 (Oct.)	Design, Data Collection, Interview Administration Time, and Data Editing in the 1996 National Household Education Survey	Kathryn Chandler
97-36 (Oct.)	Measuring the Quality of Program Environments in Head Start and Other Early Childhood Programs: A Review and Recommendations for Future Research	Jerry West

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
97-37 (Nov.)	Optimal Rating Procedures and Methodology for NAEP Open-ended Items	Steven Gorman
97-38 (Nov.)	Reinterview Results for the Parent and Youth Components of the 1996 National Household Education Survey	Kathryn Chandler
97-39 (Nov.)	Undercoverage Bias in Estimates of Characteristics of Households and Adults in the 1996 National Household Education Survey	Kathryn Chandler
97-40 (Nov.)	Unit and Item Response Rates, Weighting, and Imputation Procedures in the 1996 National Household Education Survey	Kathryn Chandler
97-41 (Dec.)	Selected Papers on the Schools and Staffing Survey: Papers Presented at the 1997 Meeting of the American Statistical Association	Steve Kaufman
97-42 (Jan. 1998)	Improving the Measurement of Staffing Resources at the School Level: The Development of Recommendations for NCES for the Schools and Staffing Survey (SASS)	Mary Rollefson
97-43 (Dec.)	Measuring Inflation in Public School Costs	William J. Fowler, Jr.
97-44 (Dec.)	Development of a SASS 1993-94 School-Level Student Achievement Subfile: Using State Assessments and State NAEP, Feasibility Study	Michael Ross
98-01 (Jan.)	Collection of Public School Expenditure Data: Development of a Questionnaire	Stephen Broughman
98-02 (Jan.)	Response Variance in the 1993-94 Schools and Staffing Survey: A Reinterview Report	Steven Kaufman
98-03 (Feb.)	Adult Education in the 1990s: A Report on the 1991 National Household Education Survey	Peter Stowe
98-04 (Feb.)	Geographic Variations in Public Schools' Costs	William J. Fowler, Jr.

Listing of NCES Working Papers to Date--Continued

Number	Title	Contact
98-05 (Mar.)	SASS Documentation: 1993-94 SASS Student Sampling Problems; Solutions for Determining the Numerators for the SASS Private School (3B) Second-Stage Factors	Steven Kaufman
98-06 (May)	National Education Longitudinal Study of 1988 (NELS:88) Base Year through Second Follow-Up: Final Methodology Report	Ralph Lee
98-07 (May)	Decennial Census School District Project Planning Report	Tai Phan
98-08 (July)	The Redesign of the Schools and Staffing Survey for 1999-2000: A Position Paper	Dan Kasprzyk
98-09 (Aug.)	High School Curriculum Structure: Effects on Coursetaking and Achievement in Mathematics for High School Graduates—An Examination of Data from the National Education Longitudinal Study of 1988	Jeffrey Owings
98-10 (Aug.)	Adult Education Participation Decisions and Barriers: Review of Conceptual Frameworks and Empirical Studies	Peter Stowe
98-11 (Aug.)	Beginning Postsecondary Students Longitudinal Study First Follow-up (BPS:96-98) Field Test Report	Aurora D'Amico
98-12 (Oct.)	A Bootstrap Variance Estimator for Systematic PPS Sampling	Steven Kaufman
98-13 (Oct.)	Response Variance in the 1994-95 Teacher Follow-up Survey	Steven Kaufman
98-14 (Oct.)	Variance Estimation of Imputed Survey Data	Steven Kaufman
98-15 (Oct.)	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
98-16 (Dec.)	A Feasibility Study of Longitudinal Design for Schools and Staffing Survey	Stephen Broughman

DEPARTMENT OF EDUCATION
UNITED STATES OF AMERICA